Service Manual

TOP NEXT

ORDER NO.VMD0001002C8

Service Manual

Digital Video Camera/Recorder

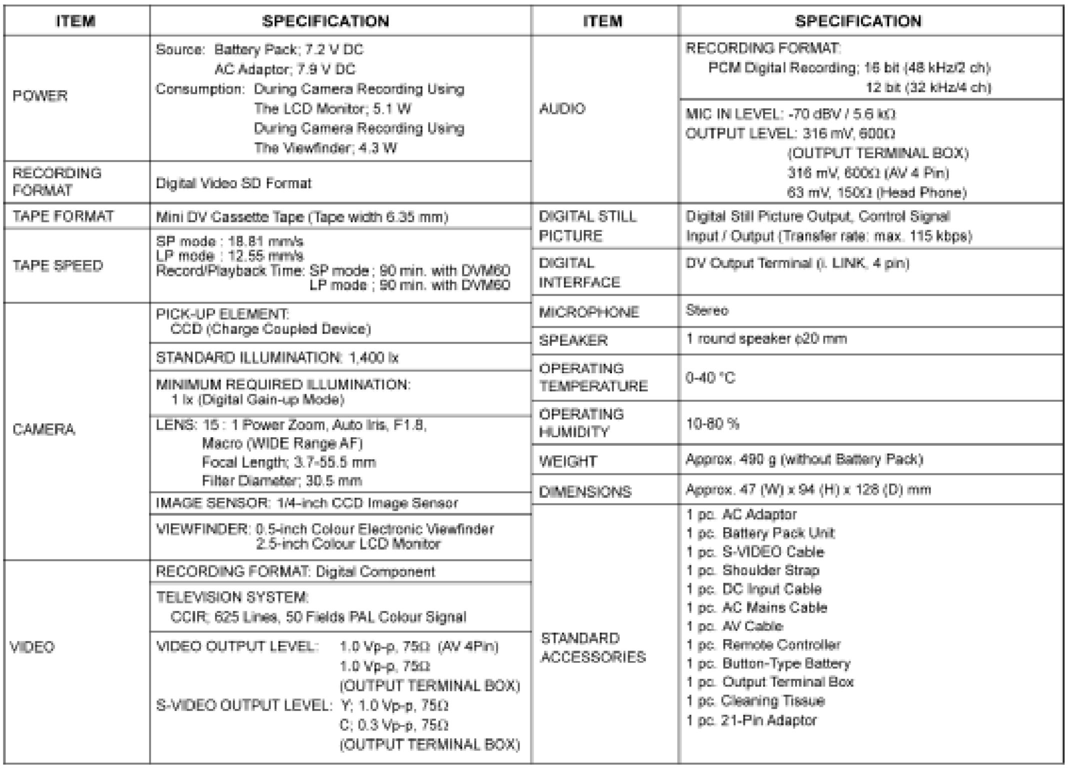
Panasonic Mini DV PAL

NV-DS55EG/NV-DS55B/NV-DS55DEN/NV-DS55A

VOL.1

Q3-MECHANISM

SPECIFICATIONS



ITEM	SPECIFICATION
POWER	Source: Battery Pack; 7.2 V DC AC Adaptor; 7.9 V DC Consumption: During Camera Recording Using The LCD Monitor; 5.1 W During Camera Recording Using The Viewfinder; 4.3 W
RECORDING FORMAT	Digital Video SD Format
TAPE FORMAT	Mini DV Cassette Tape (Tape width 6.35 mm)
TAPE SPEED	SP mode : 18.81 mm/s LP mode : 12.55 mm/s Record/Playback Time: SP mode ; 90 min. with DVM60 LP mode ; 90 min. with DVM60
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lx
	MINIMUM REQUIRED ILLUMINATION: 1 lx (Digital Gain-up Mode)
	LENS: 15 : 1 Power Zoom, Auto Iris, F1.8, Macro (WIDE Range AF) Focal Length; 3.7-55.5 mm Filter Diameter; 30.5 mm
	IMAGE SENSOR: 1/4-inch CCD Image Sensor
	VIEWFINDER: 0.5-inch Colour Electronic Viewfinder 2.5-inch Colour LCD Monitor
VIDEO	RECORDING FORMAT: Digital Component
	TELEVISION SYSTEM: CCIR; 625 Lines, 50 Fields PAL Colour Signal
	VIDEO OUTPUT LEVEL: 1.0 Vp-p, 75Ω (AV 4Pin) 1.0 Vp-p, 75Ω (OUTPUT TERMINAL BOX) S-VIDEO OUTPUT LEVEL: Y; 1.0 Vp-p, 75Ω C; 0.3 Vp-p, 75Ω (OUTPUT TERMINAL BOX)

ITEM	SPECIFICATION
AUDIO	RECORDING FORMAT: PCM Digital Recording; 16 bit (48 kHz/2 ch) 12 bit (32 kHz/4 ch)
	MIC IN LEVEL: -70 dBV / 5.6 kΩ OUTPUT LEVEL: 316 mV, 600Ω (OUTPUT TERMINAL BOX) 316 mV, 600Ω (AV 4 Pin) 63 mV, 150Ω (Head Phone)
DIGITAL STILL PICTURE	Digital Still Picture Output, Control Signal Input / Output (Transfer rate: max. 115 kbps)
DIGITAL INTERFACE	DV Output Terminal (i. LINK, 4 pin)
MICROPHONE	Stereo
SPEAKER	1 round speaker φ20 mm
OPERATING TEMPERATURE	0-40 °C
OPERATING HUMIDITY	10-80 %
WEIGHT	Approx. 490 g (without Battery Pack)
DIMENSIONS	Approx. 47 (W) x 94 (H) x 128 (D) mm
STANDARD ACCESSORIES	1 pc. AC Adaptor 1 pc. Battery Pack Unit 1 pc. S-VIDEO Cable 1 pc. Shoulder Strap 1 pc. DC Input Cable 1 pc. AC Mains Cable 1 pc. AV Cable 1 pc. Remote Controller 1 pc. Button-Type Battery 1 pc. Output Terminal Box 1 pc. Cleaning Tissue 1 pc. 21-Pin Adaptor

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Table Of Contents

COVER

1 INTRODUCTION

1.1 INTRODUCTION1

1.2 INTRODUCTION 2

2 CAUTION FOR AC CORD (VJA0940 TYPE)

2.1 INFORMATION FOR YOUR SAFETY

2.2 CAUTION FOR AC MAINS LEAD

2.2.1 Important

2.2.2 Before use

2.2.3 How to replace the Fuse

3 SERVICE CAUTION

3.1 EEPROM DATA FOR SPARE PARTS OF THE MAIN C.B.A.

3.2 SERVICE EXTENSION CABLES.

3.3 LOCATION FOR SPARE CONNECTORS OF THE MAIN C.B.A.

4 PREPARATION FOR ELECTRICAL ADJUSTMENT

4.1 SERVICE POSITION

4.2 HP LIGHT BOX

5 SERVICE MODE

6 HOW TO REPLACE THE LITHIUM BATTERY (PROCEDURE)

7 GENERAL DESCRIPTIONS

8 ADJUSTMENT PROCEDURES

8.1 DISASSEMBLE FLOW CHART

8.2 DISASSEMBLY PROCEDURES

8.3 DISASSEMBLY PROCEDURES OF CAMERA LENS UNIT

9 ABBREVIATIONS

10 WAVEFORM TABLE

11 SCHEMATIC DIAGRAMS

11.1 OVERALL SCHEMATIC DIAGRAM

11.2 INTERCONNECTION SCHEMATIC DIAGRAM

11.3 E.V.F. SCHEMATIC DIAGRAM

11.4 POWER SCHEMATIC DIAGRAM

11.5 DRIVE SCHEMATIC DIAGRAM

11.6 MIC UNIT SCHEMATIC DIAGRAM
11.7 MONITOR& SENSOR FLEX. CARD SCHEMATIC DIAGRAM
11.8 CCD FLEX. CARD SCHEMATIC DIAGRAM
11.9 TOP OPERATION SCHEMATIC DIAGRAM
11.10 MULTI JACK SCHEMATIC DIAGRAM
11.11 S/S POWER FLEX. CARD SCHEMATIC DIAGRAM
11.12 MMC/AV JACK SCHEMATAIC DIAGRAM
11.13 SIDE OPERATION UNIT SCHEMATIC DIAGRAM
12 CIRCUIT BOARD ASSEMBLIES
12.1 POWER C.B.A.
12.2 DRIVE C.B.A.
12.3 MIC UNIT
12.4 MONITOR C.B.A.
12.5 E.V.F. C.B.A.
12.6 CCD FLEX. CARD C.B.A.
12.7 MULTI JACK C.B.A.
13 EXPLODED VIEWS
13.1 FRAME& CASING SECTION (1)
13.2 FRAME& CASING SECTION (2)
13.3 LCD SECTION
13.4 CAMERA LENS SECTION
13.5 PACKING PARTS& ACCESSORIES SECTION
14 REPLACEMENT PARTS LIST
14.1 FRAME& CASING SECTION (1) PARTS LIST
14.2 FRAME& CASING SECTION (2) PARTS LIST
14.3 LCD SECTION PARTS LIST
14.4 CAMERA LENS SECTION PARTS LIST
14.5 PACKING PARTS& ACCESSORIES SECTION PARTS LIST
14.6 ELECTRICAL PARTS LIST

© 2000 Matsushita Electric Industrial Co., Ltd. All rights reserved. Unauthorized copying and distribution is a violation of law.

Panasonic

•@

TOP NEXT

1 INTRODUCTION

TOP PREVIOUS NEXT

1.1 INTRODUCTION1

1.2 INTRODUCTION 2

•@

TOP PREVIOUS NEXT

1.1 INTRODUCTION1

TOP PREVIOUS NEXT

This service manual contains technical information which will allow service personnel´s to understand and service this model.Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

Note 1:

These movie camera uses AC Adaptor is VSK0565.

The service manual for AC Adaptor is separate volume.

Order number for AC Adaptor-----VSK0565 : VMD9908033C8

Note 2:

This service manual does not contain the following information, because of the impossibility of sevicing at component level.

1. Schematic Diagram, Block Diagram and C.B.A. of Main C.B.A.
2. Parts List for individual parts of Main C.B.A.
3. Exploded View and Parts List for individual parts of Mecha. Unit

When a part replacement is required for repairing Main C.B.A. and/or Mecha. Unit, replace the assembly parts.

The following circuits are contained in Main C.B.A.

1. Main Connection Circuit
2. DSC Circuit
3. Camera Circuit
4. Video 1 Circuit
5. Video 2 Circuit
6. Video 3 Circuit
7. Control Circuit
8. Lens Drive Circuit
9. Digital Interface Circuit
10. LCD Circuit

•@

TOP PREVIOUS NEXT

1.2 INTRODUCTION 2

TOP PREVIOUS NEXT

NOTE: NV-DS55

NV-DS55 series hasto versions depends on contries.

Detail as follows.

Model-No (Version)	NV-DS55DEN
PACKING CASE	VPK2322
AC-CABLE	VJA0940

•@

TOP PREVIOUS NEXT

2 CAUTION FOR AC CORD (VJA0940 TYPE)

TOP PREVIOUS NEXT

2.1 INFORMATION FOR YOUR SAFETY

2.2 CAUTION FOR AC MAINS LEAD

2.2.1 Important

2.2.2 Before use

2.2.3 How to replace the Fuse

•@

TOP PREVIOUS NEXT

2.1 INFORMATION FOR YOUR SAFETY

TOP PREVIOUS NEXT

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

CAUTION

To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

•@

TOP PREVIOUS NEXT

2.2 CAUTION FOR AC MAINS LEAD

TOP PREVIOUS NEXT

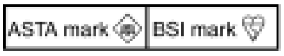
For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362

Check for the ASRA mark or the BSI mark on the body of the fuse.



If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

If the fitted moulded plug is unsuitable for the socket outlet in your home then the fuse should be removed and the plug cut off and disposed of safety.

There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

2.2.1 Important

2.2.2 Before use

2.2.3 How to replace the Fuse

•@

TOP PREVIOUS NEXT

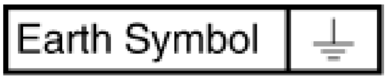
2.2.1 Important

TOP PREVIOUS NEXT

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol.



Earth Symbol	⏚

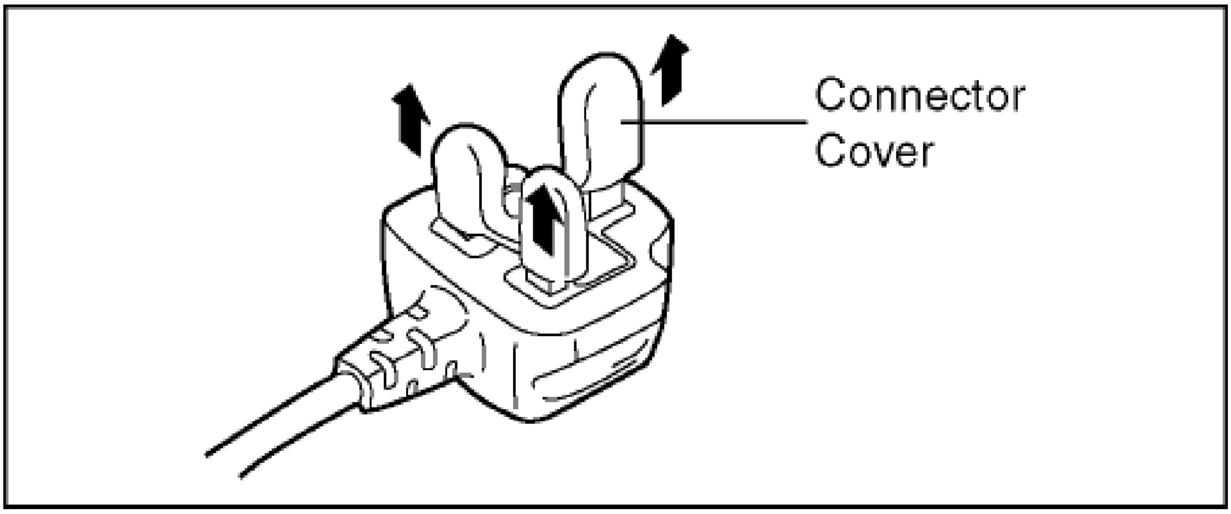
•@

TOP PREVIOUS NEXT

2.2.2 Before use

TOP PREVIOUS NEXT

remove the Connector Cover as follows.



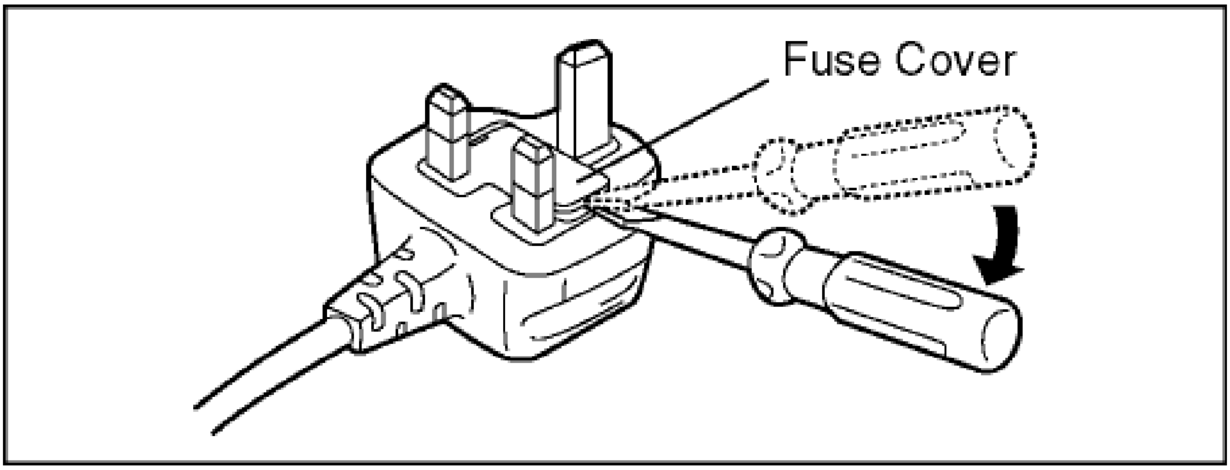
•@

TOP PREVIOUS NEXT

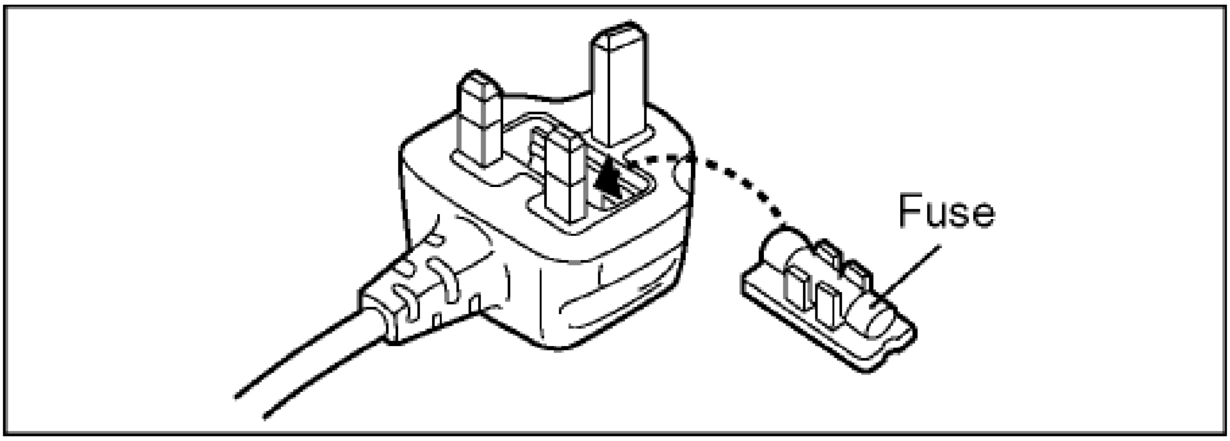
2.2.3 How to replace the Fuse

TOP PREVIOUS NEXT

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



•@

TOP PREVIOUS NEXT

3 SERVICE CAUTION

TOP PREVIOUS NEXT

3.1 EEPROM DATA FOR SPARE PARTS OF THE MAIN C.B.A.

3.2 SERVICE EXTENSION CABLES.

3.3 LOCATION FOR SPARE CONNECTORS OF THE MAIN C.B.A.

•@

TOP PREVIOUS NEXT

3.1 EEPROM DATA FOR SPARE PARTS OF THE MAIN C.B.A.

TOP PREVIOUS NEXT

When the Main C.B.A. is replaced, the fixed and average data must be changed by Tatsujin kit according to the Movie Camera’s suffix.

Then, confirm and/or adjust the VTR and Camera adjustment one by one.

•@

TOP PREVIOUS NEXT

3.2 SERVICE EXTENSION CABLES.

TOP PREVIOUS NEXT

This models is required the following extension cables for all connections.

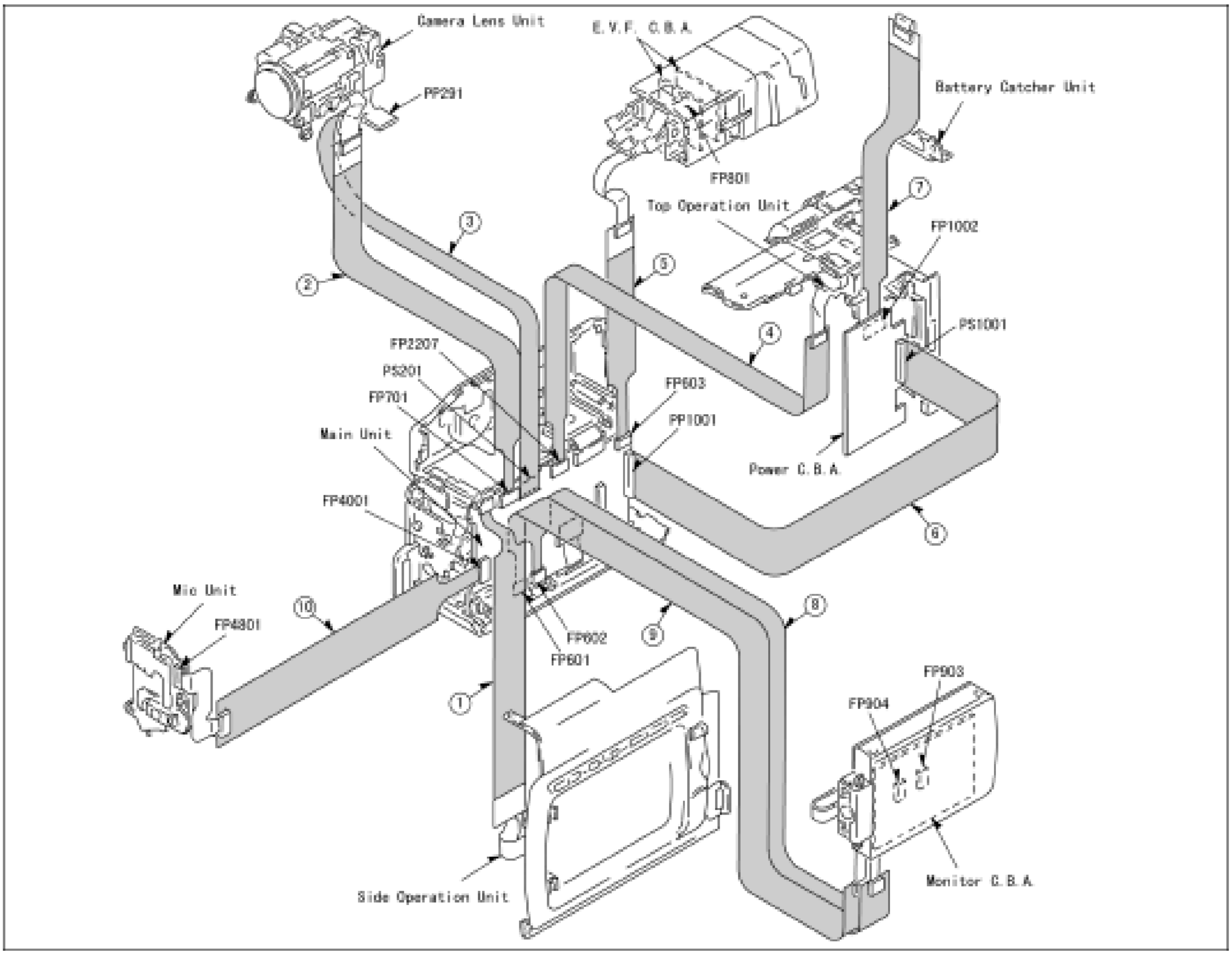
Note 1:

Use the following extension cables when checking or adjusting individual circuit boards except module Parts. (Main C.B.A. and Mecha. Unit)

Ref.	Part No.	Pin	Part Name	Connection	Q´ty	Remarks
(1)	VFK1440	10	Flat Cable	FP2206 (Main)-Side Operation Unit	1	As NV-DS77
(2)	VFK1491	27	Flat Cable	FP701 (Main)-Lens Unit	1	As NV-DS99
(3)	VFK1460	20	Flat Cable	PS201 (Main)-PP291 (CCD)	1	As NV-EX1
(4)	VFK1442	21	Flat Cable	FP2207 (Main)-Top Operation Unit	1	As NV-DS77
(5)	VFK1442	21	Flat Cable	FP603 (Main)-FP801 (E.V.F.)	1	As NV-DS77
(6)	VFK1463	90	Flat Cable	PP1001 (Main)-PS1001 (Power)	1	As NV-EX1
(7)	VFK1173	14	Flat Cable	FP1002 (Power)-Battery Catcher	1	As NV-DX1
(8)	VFK1452	17	Flat Cable	FP602 (Main)-FP904 (Monitor)	1	As NV-DS77
(9)	VFK1442	21	Flat Cable	FP601 (Main)-FP903 (Monitor)	1	As NV-DS77
(10)	VFK1491	29	Flat Cable	FP4001 (Main)-FP4801 (Mic Unit)	1	As NV-DS99

How to use extension cables.

Fig. T1


Camera Lens Unit
FP291
E.V.F. C.B.A.
FP801
Battery Catcher Unit
⑦
Top Operation Unit
FP1002
③
②
⑤
④
PS1001
FP2207
PS201
FP701
FP603
FP1001
Main Unit
Power C.B.A.
FP4001
⑥
Mic Unit
⑩
FP4801
⑧
FP602
⑨
FP601
①
FP903
FP904
Side Operation Unit
Monitor C.B.A.

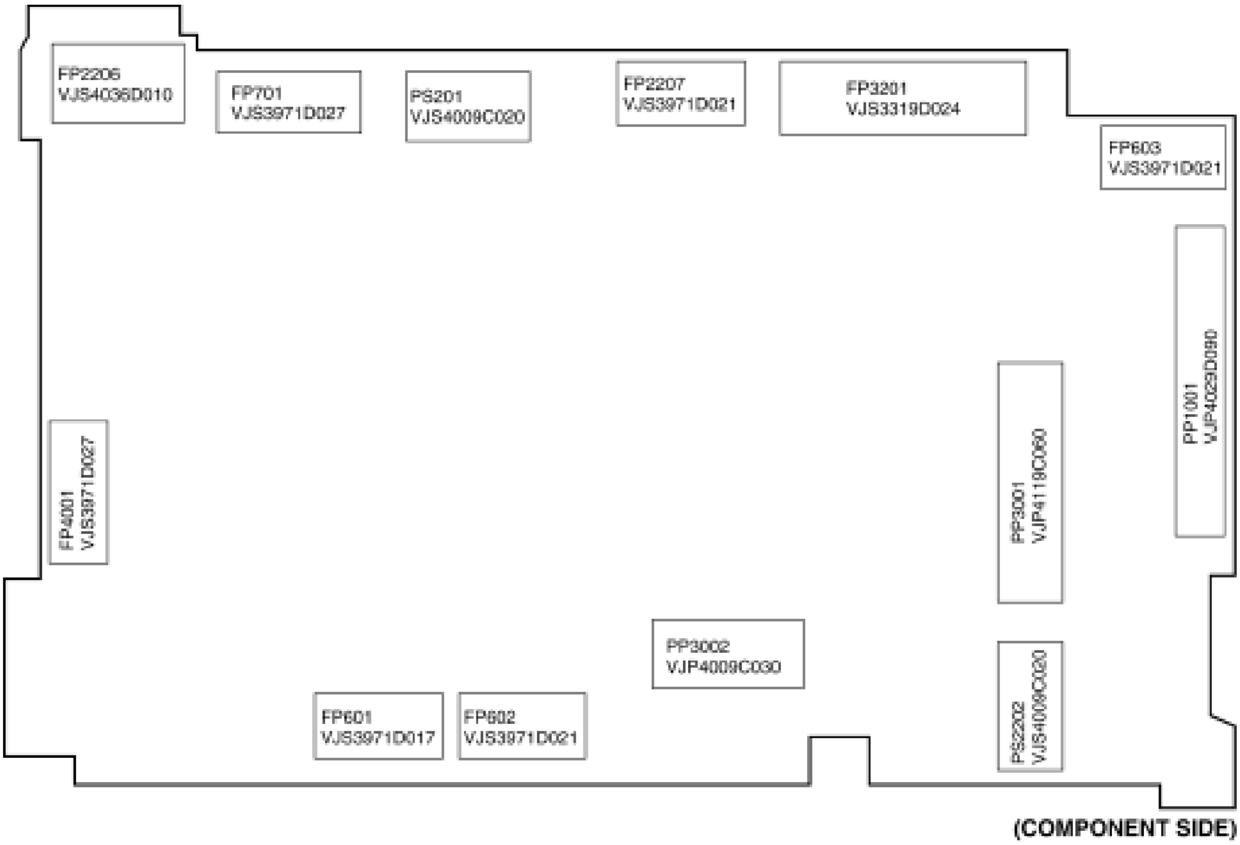
•@

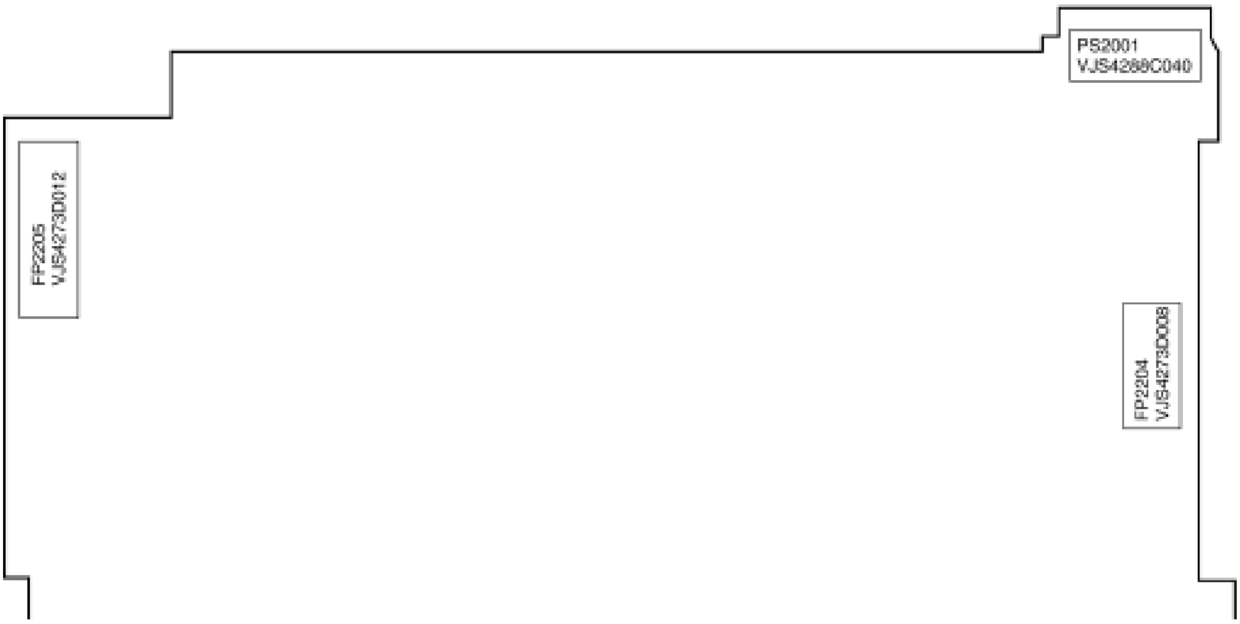
TOP PREVIOUS NEXT

3.3 LOCATION FOR SPARE CONNECTORS OF THE MAIN C.B.A.

TOP PREVIOUS NEXT

Fig. T2


FP2206
VJS4036D010
FP701
VJS3971D027
PS201
VJS4009C020
FP2207
VJS3971D021
FP3201
VJS3319D024
FP603
VJS3971D021
PP1001
VJP4029D090
FP4001
VJS3971D027
PP3001
VJP4119C060
PP3002
VJP4009C030
PS2202
VJS4009C020
FP601
VJS3971D017
FP602
VJS3971D021
(COMPONENT SIDE)


PS2001
VJS4288C040
FP2205
VJS4273D012
FP2204
VJS4273D008

•@

TOP PREVIOUS NEXT

4 PREPARATION FOR ELECTRICAL ADJUSTMENT

TOP PREVIOUS NEXT

4.1 SERVICE POSITION

4.2 HP LIGHT BOX

•@

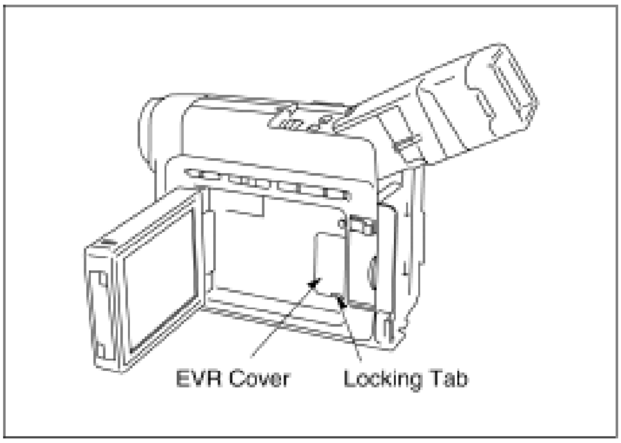
TOP PREVIOUS NEXT

4.1 SERVICE POSITION

TOP PREVIOUS NEXT

1. Remove the EVR Cover which is located on the Side Case Unit as follows.
2. Then connect the following cables as shown in Fig. E2 .

Fig. E1


EVR Cover
Locking Tab

Part No.	Part Name	Q'ty	Remarks
VFA1395	232C I/F Cable	1	
VFK1308E	Measuring Board	1	
VFK1309	EVR Connector Board	1	
VFK1317	30 Pin Flat Cable	2	
VJA0941	DC Output Cable	1	For AC Adaptor
VFK1164TAR3A	Setup Ring (30.5 mm)	1	For Collimator

Fig. E2

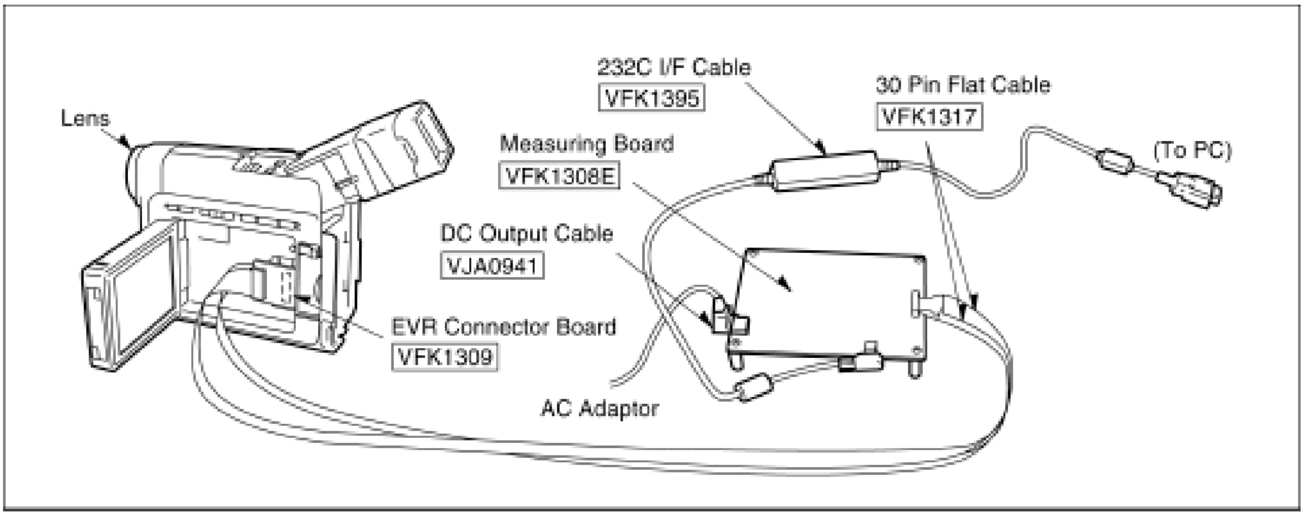
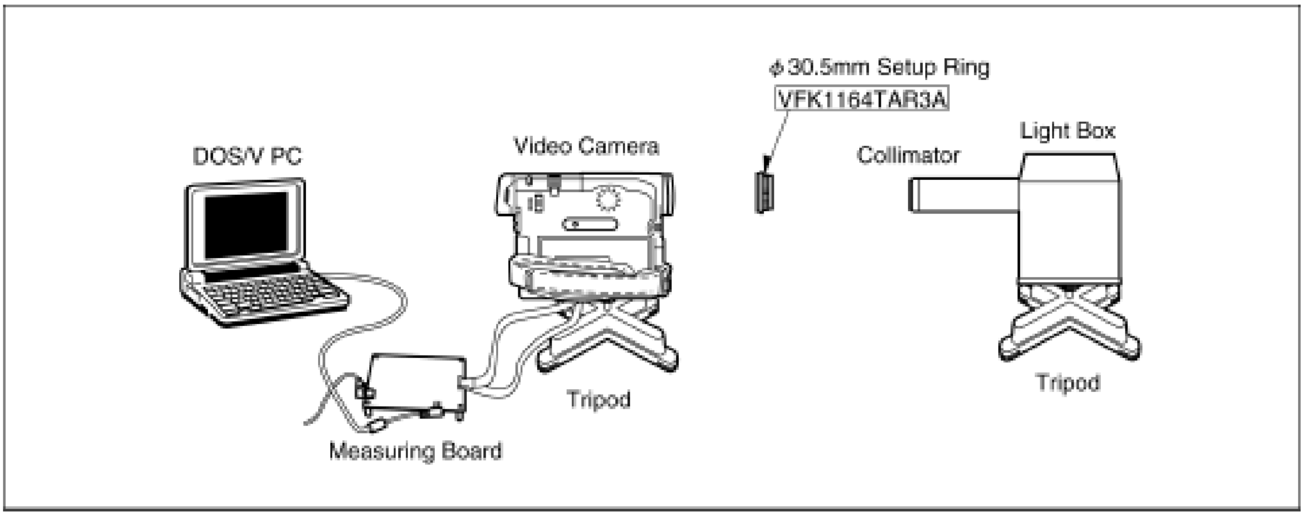

Lens
232C I/F Cable
VFK1395
30 Pin Flat Cable
VFK1317
Measuring Board
VFK1308E
(To PC)
DC Output Cable
VJA0941
EVR Connector Board
VFK1309
AC Adaptor

Fig. E3


ϕ 30.5mm Setup Ring
VFK1164TAR3A
Light Box
DOS/V PC
Video Camera
Collimator
Tripod
Tripod
Measuring Board

•@

TOP PREVIOUS NEXT

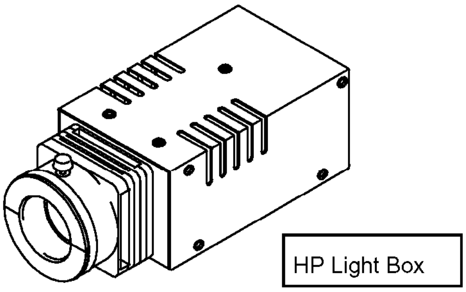
4.2 HP LIGHT BOX

TOP PREVIOUS NEXT

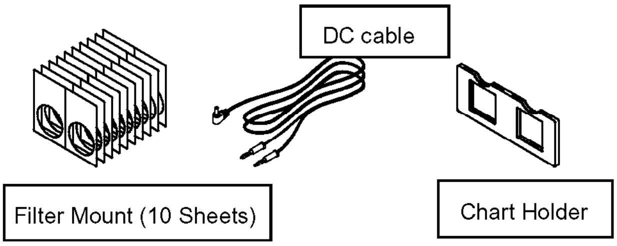
•@

TOP PREVIOUS NEXT

(Part Number: VFK1164TDVLB)



Standard Accessory



Features

High-Intensity Luminance and Long Life Made Possible by New Halogen Lamp (20 W / DC 12 V)
Luminance: 1,900 cd/m^2 (Luminance conversion: ≈ 5,900 lux) (Rate compared with conventional models: 2.4 times*)
Life: Over 1,000 hours (Rate compared with conventional models: Over 10 times)

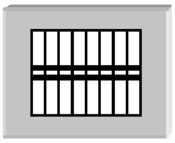
Compact Design
Specific volume compared with conventional models: Approx. 65%*
*Not including camera stand

Attachment of Collimator
(Collimator: Infinity Adjustment Lens)
It is possible to screw up a collimator to the Light Box. And it is very easy to compensate for the slant (shear of the optical axis) caused by the weight of the collimator itself.

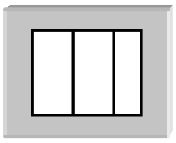
Attachment of Charts and Optical Filters
For easy and quick replacement of the charts, the light box is equipped with the slot and the chart holder.
Also, it is equipped with the slots for optical filters, one for color temperature conversion filters, and one for color compensation filters.
It is very convenient to set up for a color condition according to adjustment procedure.

Integrated Cooling Fan
To prevent the temperature from rising inside the Light Box and to extend the life of the lamp, it is equipped.

Optional Accessory



HP Gray scale
VFK1164TDVGS

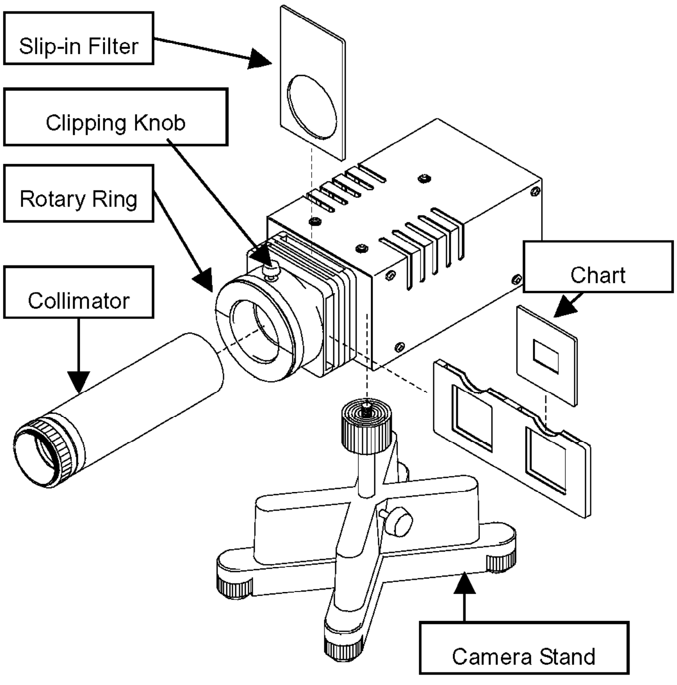


HP Color Bar
VFK1164TDVCB

Preparation

DC power supply:
More than 2 A at 12 V
Compact transmission chart:
HP Gray-scale: VFK1164TDVGS
HP Color bar: VFK1164TDVCB
Camera stand: VFK1164TST01
Optical filters (Made by Triacetyl Cellulose):
Color balancing filter: Commercially available
Color compensating filter: Commercially available

Installation



1. Attach one camera stand to the bottom of the Light Box and attach the other one to the tripod mount at the bottom of the camcorder. Next, adjust the height of each camera stand (using coarse control) so that the central point of the emission face of the Light Box aligns with the central point of the camcorder s lens.
2. Detach the end of the collimator (Infinity Adjustment Lens). Be sure to loosen the Light Box’s clipping knob* before attaching the collimator to the Light Box. Screw the end of collimator into the rotary ring on the front of the Light Box to attach.

3. Attach the other end (lens side) of the collimator to the filter mounting screw of the camcorder's lens. If it does not fit, use the step-up ring provided with the collimator.
4. Load the compact transmission chart (gray-scale/color chart) in the chart holder and insert the chart holder into the chart slot.
5. Connect the DC regulated power supply (DC 12 V ± 0.2 V, approx. 1.7 A) to the Light Box using the provided DC cord (red (+), black (–)) and turn on the power switch at the rear of the Light Box.
6. While shooting the chart with the camcorder, adjust (using fine control) the chart holder position as well as the height of the Light Box and camcorder until the desired angle of view is achieved.

Hint:

Tightening the clipping knob fixes the rotary ring firmly. When it is completely tightened, the collimator attached to the rotary ring is at right angles to the emission face of the Light Box or chart. If the collimator cannot be attached to the camcorder, try tightening the clipping knob to compensate for shearing of the optical axis in the collimator. On the other hand, if the collimator can be attached to the camcorder, try loosening the clipping knob slightly to make a little room around the clipping knob.

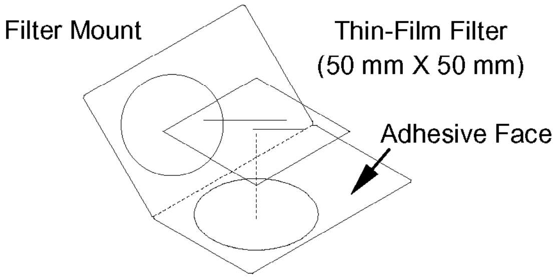
Optical Filter (Made by Triacetyl cellulose)

Camcorder adjustment requires a commercially-available a color temperature conversion filter and a color compensation filter. For all kinds of thin film filters, use the provided filter mount.
To make a slip-in filter with the desired optical characteristics, follow the procedures below.

To use a slip-in filter, insert it into the Light Box filter slot. It is possible to insert 7 slip-in filters at a time into the filter slot.

How to Make a Slip-in Filter

1. Cut the desired optical filter to 50 mm x 50 mm.
2. Remove the seal at the rear of the filter mount, stick the optical filter in the filter mount (over the hole), then fold the filter mount in half.
3. It is recommended that you write the filter factor on the filter mount.



Specifications

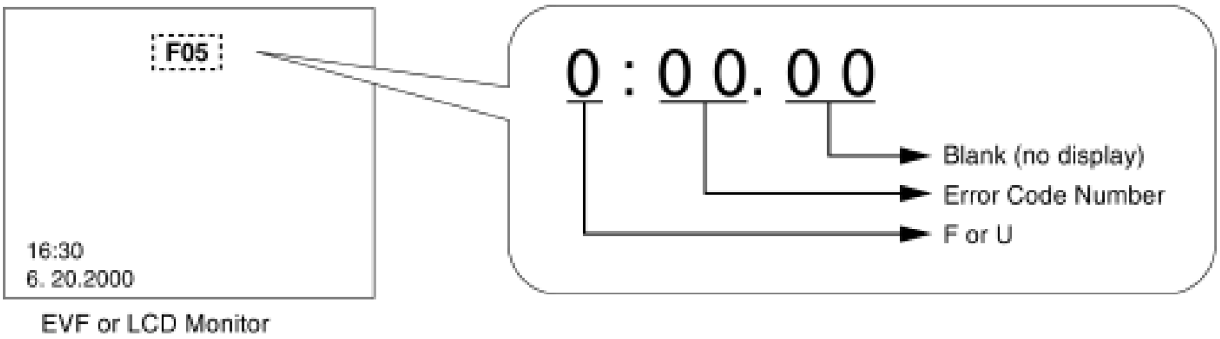
Size:	90 mm (W) x 197.5 mm (D) x 70 mm (H)
Weight:	750 g
Power Supply:	External DC regulated power supply (DC 12 V more than 2 A)
Lamp:	20 W/DC 12 V halogen lamp (Life: 2,000 hours)
Luminance:	1,900 cd/m^2 ± 100 cd/m^2 (center of the emission face) (luminance conversion: ≈ 5,900 lux)
Homogeneity:	Within ± 10%
Color temperature:	3,100 K ± 100 K (center of the emission face)
CIE chromaticity coordinate:	x = 0.430 ± 0.02 y = 0.400 ± 0.02
Internal filter:	LB 60 + M 50 (modified: 1.5 mm thickness)

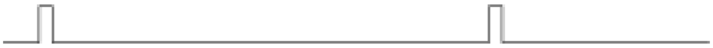
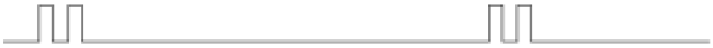
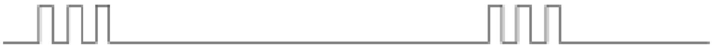
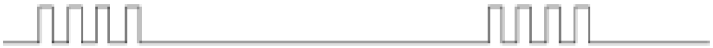
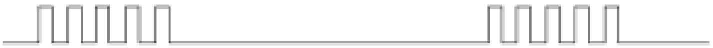
5 SERVICE MODE

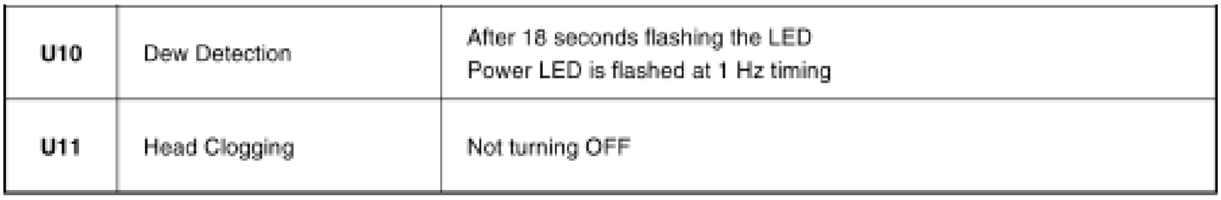
TOP PREVIOUS NEXT

When undesirable conditions occurred, the error code is displayed on the EVF or LCD Monitor.

Also, the Camera LED is flashed according to the error code as follows.



DISPLAY	CONDITION	POWER OFF TIMING / POWER LED FLASHING TIMING
F01	T-Reel Lock	After 1 minute flashing the LED 
F02	S-Reel Lock	After 1 minute flashing the LED 
F03	Unloading Lock	After 1 minute flashing the LED 
F04	Loading Lock	After 1 minute flashing the LED 
F05	Cylinder Lock	After 1 minute flashing the LED 
F31	Data Transmission Error	Not turning OFF
F51	Focus Motor Lock	Not turnig OFF Power LED is flashed at 1 Hz timing
F52	Zoom Motor Lock	Not turnig OFF Power LED is flashed at 1 Hz timing
F53	OIS Lock 1 (Sensor)	Not turning OFF
F54	OIS Lock 2 (Actuator)	Not turning OFF



U10	Dew Detection	After 18 seconds flashing the LED Power LED is flashed at 1 Hz timing
U11	Head Clogging	Not turning OFF

•@

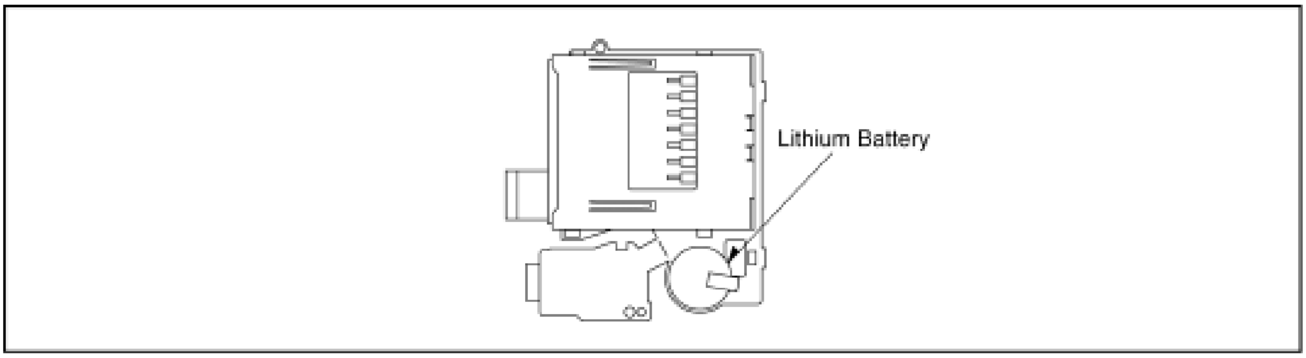
TOP PREVIOUS NEXT

6 HOW TO REPLACE THE LITHIUM BATTERY (PROCEDURE)

TOP PREVIOUS NEXT

1. Remove the MMC/AV JACK C.B.A. from Rear Case Unit. (Refer to Disassembly Procedures.)
2. Remove the Lithium Battery“VSB0470” and then replace the new one. (See Fig. B1 .)

Fig. B1



Note:

The lithium battery is a critical component. (Type No.:VSB0470 Manufactured by Panasonic.)

It must never be subjected to excessive heat or discharge.

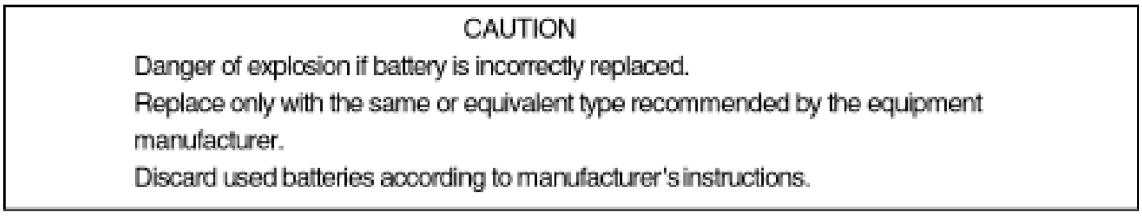
It must therefore only be fitted in equipment designed specifically for its use.

Replacement batteries must be of the same type and manufacture.

They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.

Do not attempt to re-charge the old battery or re-use it for any other purpose.

It should be disposed of in waste products destined for burial rather than incineration.

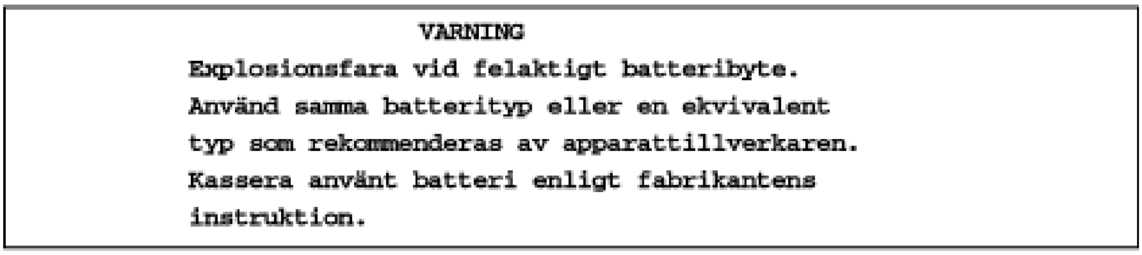


CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the equipment manufacturer.

Discard used batteries according to manufacturer's instructions.

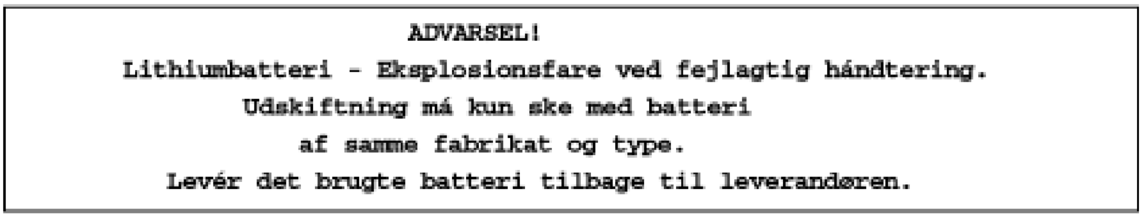


VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt fabrikantens instruktion.

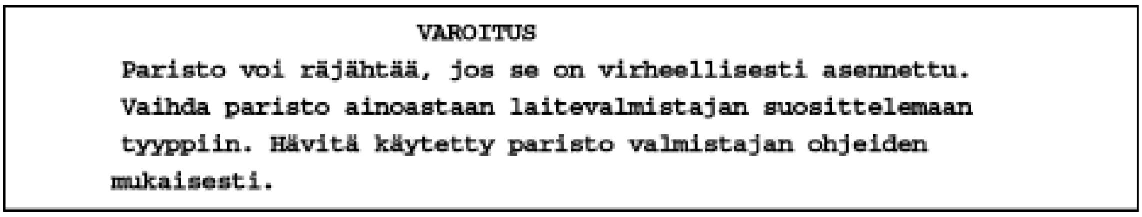


ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri af samme fabrikat og type.

Levér det brugte batteri tilbage til leverandøren.



VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

•@

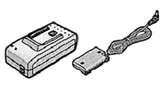
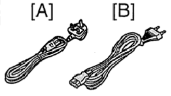
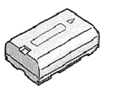
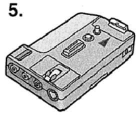
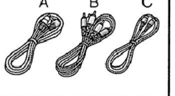
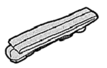
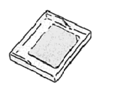
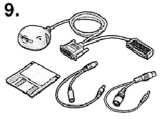
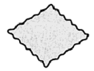
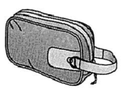
TOP PREVIOUS NEXT

7 GENERAL DESCRIPTIONS

TOP PREVIOUS NEXT

•@

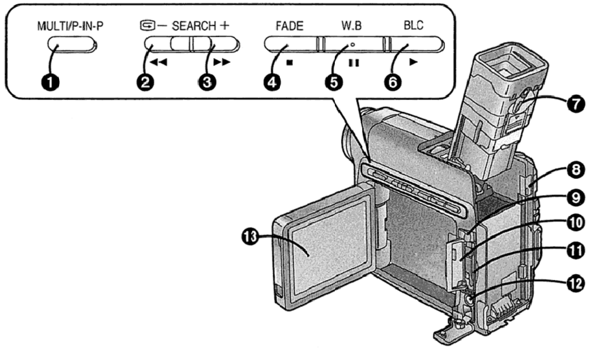
TOP PREVIOUS NEXT

1. 	2. [A] [B] 	3. 	4. 	5. 
6. A B C 	7. 	8. 	9. 	10.
11. 	12. 	13. 		

Standard Accessories

1. **AC Adaptor (→ 10, 11, 101, 104)**
   To supply power to the Movie Camera.
   To charge the Battery.

   DC Input Lead (→ 10)
   To connect the AC Adaptor to the Movie Camera.
2. **AC Mains Lead (→ 10, 11)**
   To connect the AC Adaptor to an AC mains socket.
   [A] Hong Kong Special Administrative Region of China
   [B] Area others Hong Kong Special Administrative Region of China
3. **Battery Pack (→ 11)**
   To supply the Movie Camera with power.
4. **Remote Controller and Button-Type Battery (→ 74, 78)**
5. **Output Terminal Box [AV ONE TOUCH STATION] (→ 31, 32, 80)**
   Equipped with AV Sockets, Edit Socket, Digital Still Picture Terminal, and Headphones Socket.
6. **A. AV Cable (PHONO-M3) (→ 31, 80)**
   B. AV Cable (PHONO-PHONO) (→ 31, 80, 82)
   C. S-Video Cable (→ 31, 80, 82, 84, 85)
7. **Shoulder Strap (→ 16)**
8. **MultiMediaCard (→ 65, 66, 68, 69, 70, 71, 72, 73, 108, 125)**
9. **MultiMediaCard External Drive (→ 124, 125, 126, 131)**
10. **Mini DV Cassette (→ 13)**
11. **Digital Video Head Cleaner (→ 106)**
12. **Cleaning Tissue**
    To clean the Lens and the LCD Monitor.
13. **Soft Bag**
    When not using the Movie Camera or carrying it in the hand, store it in this bag.



Controls and Components

❶ Multi-Picture Button [MULTI] (→ 44, 45, 56, 57, 58)
Picture-in-Picture Button [P-IN-P] (→ 47)

❷ Reverse Search Button [– SEARCH] (→ 33, 68)
Rewind/Review Button [◀◀] (→ 27, 28)
Recording Check Button [⊟] (→ 18)

❸ Forward Search Button [SEARCH +] (→ 33, 68)
Fast Forward/Cue Button [▶▶] (→ 28)

❹ Fade Button [FADE] (→ 38)
Stop Button [■] (→ 27, 68)

❺ White Balance Button [W.B] (→ 50, 51)
Pause Button [❚❚] (→ 30, 68)

❻ Backlight Button [BLC] (→ 18)
Play Button [▶] (→ 27, 68)

❼ Eyepiece Corrector Lever (→ 15)

❽ Battery Eject Button [BATT. EJECT PUSH] (→ 11)

❾ LCD Monitor Open Lever [OPEN⎯] (→ 15)

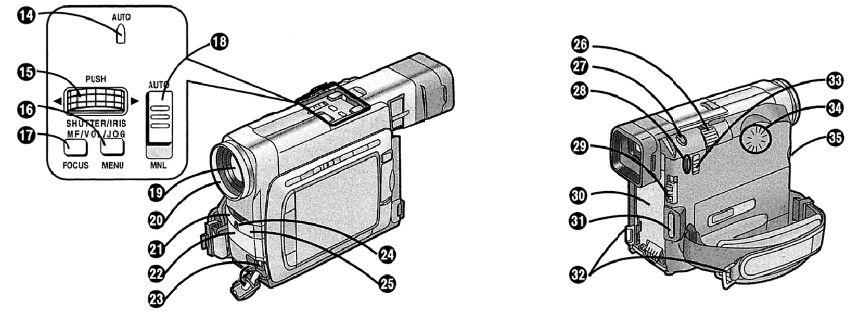
❿ MultiMediaCard Slot Cover [CARD] (→ 65)

⓫ MultiMediaCard Slot (→ 65)

⓬ Audio-Video Output Socket [AV OUT] (→ 31, 80, 109)
When a cable is connected to this socket, the Movie Camera's built-in speaker is turned off.

⓭ LCD Monitor (→ 15)

> Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD Monitor screen. However, this is not a malfunction and does not affect the recorded picture.



⓮ Auto Mode Lamp [AUTO] (→ 17)
This lamp lights when you set the Mode Selector Switch to [AUTO].

⓯ Multi-Function Dial [PUSH]
(→ 27, 28, 30, 52, 53, 54, 60, 69, 70, 71, 94, 100, 102)

⓰ Menu Button [MENU] (→ 94)

⓱ Focus Button [FOCUS] (→ 52)

⓲ Mode Selector Switch [AUTO/MNL]
(→ 17, 39, 50, 51, 52, 53, 54)

⓳ Lens

⓴ Lens Hood (→ 109)

㉑ White Balance Sensor (→ 113)

㉒ Microphone (built-in, stereo)

㉓ DV Terminal (i.LINK) [i]
To input/output digital signals.
"i.LINK" is the name of the connector in accordance with the International Standard IEEE1394-1995.
"i" is the logo marked on products conforming with the "i.LINK" specifications.

㉔ Recording Lamp (→ 17)

㉕ Remote Control Sensor (→ 79)

㉖ Zoom Lever [W/T] (→ 20, 21, 51)

㉗ Photoshot Button [PHOTO SHOT] (→ 22, 23, 66)

㉘ Operation Mode Lamps [CAMERA/VCR/CARD P.B]
(→ 17, 27, 68)

㉙ Off/On Mode Selector Switch [OFF/ON/MODE]
(→ 15, 17, 27, 32, 65, 66, 68)

㉚ Battery Holder (→ 11, 32)

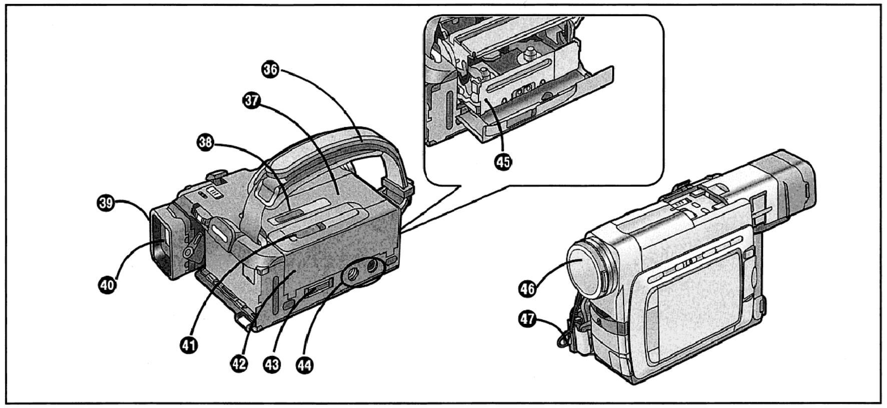
㉛ Recording Start/Stop Button (→ 17)

㉜ Shoulder Strap Holders (→ 16)

㉝ Tape/Card Photoshot Selector [TAPE/CARD] (→ 66, 72)

㉞ Speaker (→ 27)

㉟ Microphone Socket [MIC] (→ 109)
To connect an external microphone or audio equipment. (Connecting to this socket deactivates the built-in microphone.)



(36) Grip Belt (→ 16)

(37) Upper Cassette Compartment Cover (→ 13)

(38) Cassette Compartment Window (→ 13)

(39) Eyecup

(40) Finder (→ 15)

(41) Cassette Eject Lever [OPEN/EJECT] (→ 13, 32)

(42) Lower Cassette Compartment Cover (→ 13)

(43) Multi Terminal (→ 31, 32, 80)

(44) Tripod Receptacle
To mount the Movie Camera on an optional tripod.

(45) Cassette Holder (→ 13)

(46) Lens Cap (→ 16, 32, 51)

(47) Lens Cap Holder

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Finder screen. However, this is not a malfunction and does not affect the recorded picture.

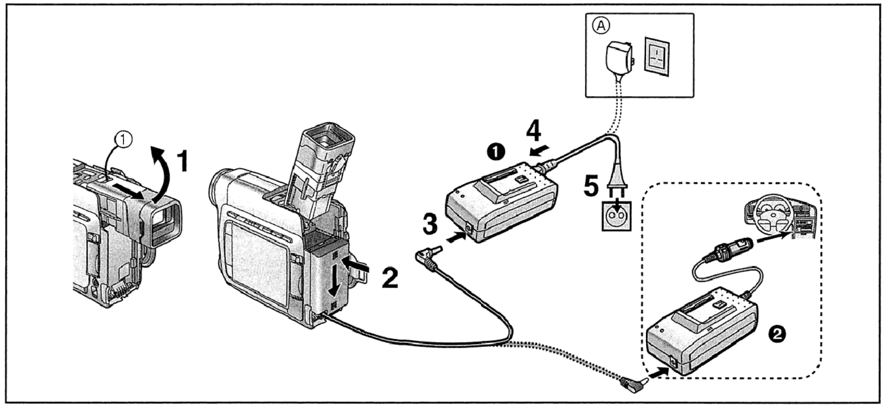
The 3 Types of Power Supplies

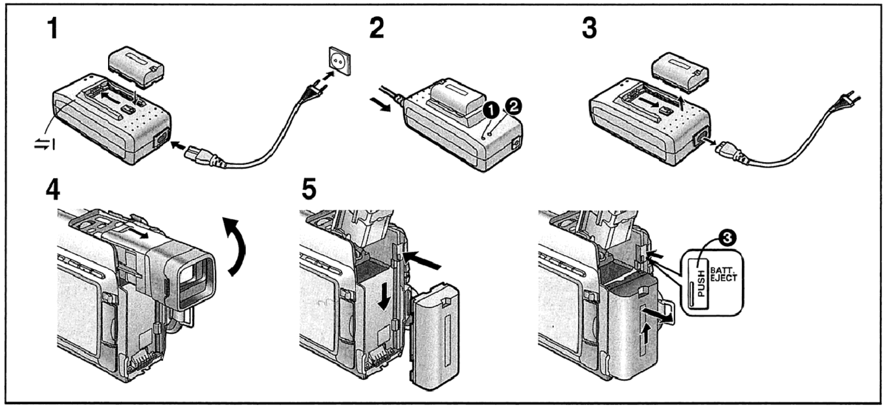
■ Supplying Power from an AC Mains Socket

1. **Hook your finger on the protruding edge ① of the Finder, slide the Finder backward to its fully extended position and then tilt it upward.**
   Do not pull on the Eyecup to extend the Finder.
2. **Insert the battery-shaped connector of the DC Input Lead as shown above into the Battery Holder on the Movie Camera and slide it downward until it locks with a click.**
3. **Connect the other end of the DC Input Lead to the AC Adaptor ❶.**
4. **Connect the AC Mains Lead to the AC Adaptor.**
5. **Connect the other end of the AC Mains Lead to an AC mains socket.**
   Ⓐ: Hong Kong Special Administrative Region of China
   - Before disconnecting the AC Mains Lead, set the [OFF/ON/MODE] Switch on the Movie Camera to [OFF].
   - If you use the Movie Camera for a long time, it becomes warm. However, this is normal.

■ Using the Car Battery Charger as Power Source for the Movie Camera

The use of the Car Battery Charger ❷ (VW-KBD2E; optional) makes it possible to supply power to the Movie Camera in a car for recording and playback.
It also allows charging the Movie Camera's Battery.
- **After use, be sure to disconnect the Car Battery Charger from the cigarette lighter socket.**
- If the Car Battery Charger is already connected to the cigarette lighter socket when you start the engine, the fuse in the Car Battery Charger's plug may blow out.
- Also read the operating instructions of the Car Battery Charger.





■ Supplying Power with the Battery

Before use, fully charge the Battery.

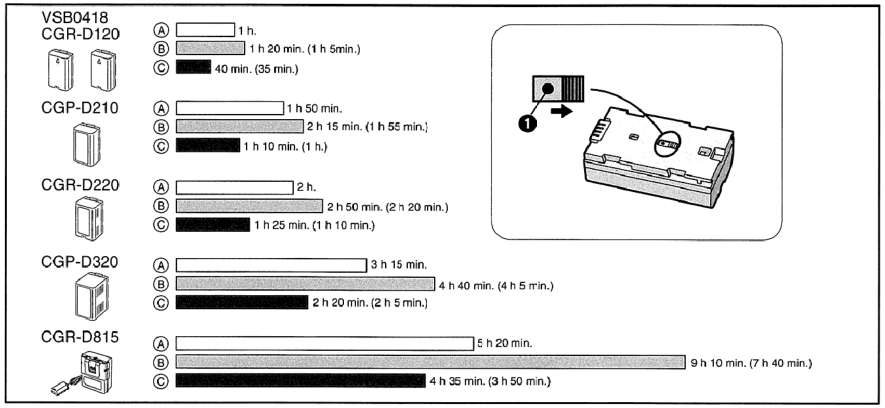
1. **Place the Battery on the AC Adaptor as shown above and slide it horizontally until it stops.**
   - If the DC Input Lead is connected to the AC Adaptor, disconnect it as charging is not possible otherwise.
2. **Securely connect the AC Mains Lead to the AC Adaptor and an AC mains socket.**
   - The [POWER] Lamp ❶ lights and then the [CHARGE] Lamp ❷ flashes for a few seconds before it remains lit and charging starts.
   - If the [CHARGE] Lamp does not flash even though the Battery is attached, remove the Battery and then re-attach it.
   - When the [CHARGE] Lamp goes out, charging is finished.
3. **Remove the Battery by sliding it in the opposite direction of Step 1 above.**
   - Also disconnect the AC Mains Lead.
4. **Slide the Finder backward to its fully extended position and then tilt it upward.**
5. **Insert the Battery into the Battery Holder on the Movie Camera and slide it downward until it locks with a click.**

Removing the Battery from the Movie Camera
While pressing the [BATT. EJECT PUSH] Button ❸, slide the Battery upward to remove it.
- Be careful not to drop the Battery by accident.
- Before removing the Battery, set the [OFF/ON/MODE] Switch to [OFF].

■ Charging Lamp [CHARGE]

Flashing:	During checking of the Battery condition
Lit:	During charging
Off:	The Battery is fully charged

- If you charge the Battery when it is not yet discharged, the [CHARGE] Lamp may flash briefly and then go out. This indicates that the Battery is fully charged. Therefore, this is not an indication of a malfunction.



Charging Time and Maximum Time for Continuous Recording

Ⓐ **Charging Time**
Ⓑ **Maximum Continuous Recording Time**
Ⓒ **Intermittent Recording Time**
(The Intermittent Recording Time indicates the total recording time possible when you start and stop recording repeatedly.)

- **"1 h 10 min." stands for "1 hour and 10 minutes".**
- The Battery Model VSB0418 is supplied.
- The times shown in the above chart are approximations. The figures in parentheses show the recording time when using the LCD Monitor.

The times listed above for your information indicate the duration of recording performed at an ambient temperature of 20°C and 60% relative humidity. The charging time may be longer when you charge the Battery at higher or lower temperature.

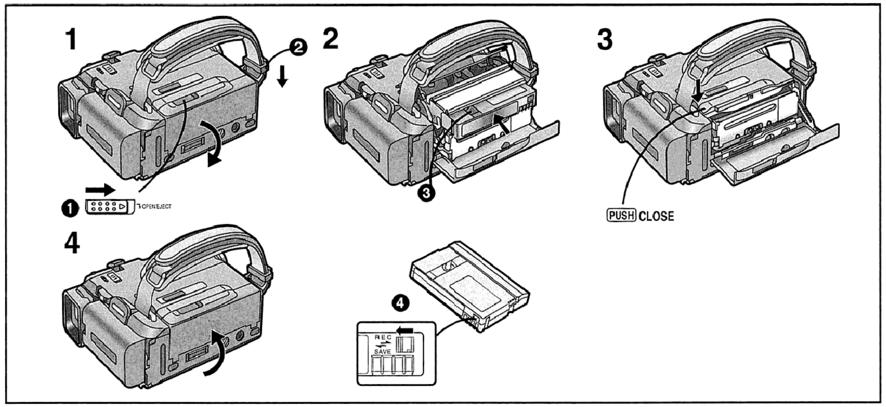
- During use and charging, the Battery becomes warm. The Movie Camera, too, becomes warm during use.
- When you repeatedly stop and restart recording, the recording time per Battery is shorter than listed above.
- If you do not use the Battery for a long time, please read "Precautions for Storage" (**→ 108**).
- **The Battery models CGP-D110 and CGP-D105 cannot be charged with this AC Adaptor.**

When the [CHARGE] Lamp Flashes Continuously

If the temperature of the Battery is extremely low or extremely high, the [CHARGE] Lamp on the AC Adaptor flashes continuously. It also flashes continuously when some malfunction has occurred in the Battery or the AC Adaptor. For details, read "Notes about the AC Adaptor" (**→ 104**).

Using Optional Batteries Equipped with Charge Confirmation Marker

You can use this marker to easily distinguish between charged and discharged Batteries.
For example, slide the knob so that the red dot (●) ❶ is visible after the charging is completed. (The Supplied Battery VSB0418 is not equipped with a Charge Confirmation Marker.)



Inserting the Cassette

1 Slide the [OPEN/EJECT] Lever ❶ to the right until it locks with a click and simultaneously open the Lower Cassette Compartment Cover completely.
The Cassette Holder slides out.

2 Insert the cassette with its window in position ❸ shown above.

3 Press on the [PUSH CLOSE] mark to close the Upper Cassette Compartment Cover.
The Cassette Holder with the cassette slides back inside. Confirm that the Cassette Holder has retracted completely.

4 Close the Lower Cassette Compartment Cover.

- If the AC Adaptor or Battery is used to supply power, it is possible to insert or eject the cassette without turning on the Movie Camera.
- When opening or closing the Cassette Compartment, push down the buckle ❷ of the Grip Belt in the direction of the arrow so it does not obstruct the opening and closing of the Cassette Compartment.
- When inserting the cassette, make sure it faces in the right direction and then push it in until it stops.
- When you insert a cassette onto which you have recorded before, use the Camera Search Function (**→ 33**) to search for the position from which you want to continue recording.
- When you insert a new cassette, rewind the tape to the beginning before starting to record.

Preventing Accidental Erasure of Recordings
Opening the cassette's erasure prevention slider ❹ (sliding it in the direction of the [SAVE] arrow) prevents recording. To record again, close the erasure prevention slider (slide it in the direction of the [REC] arrow).

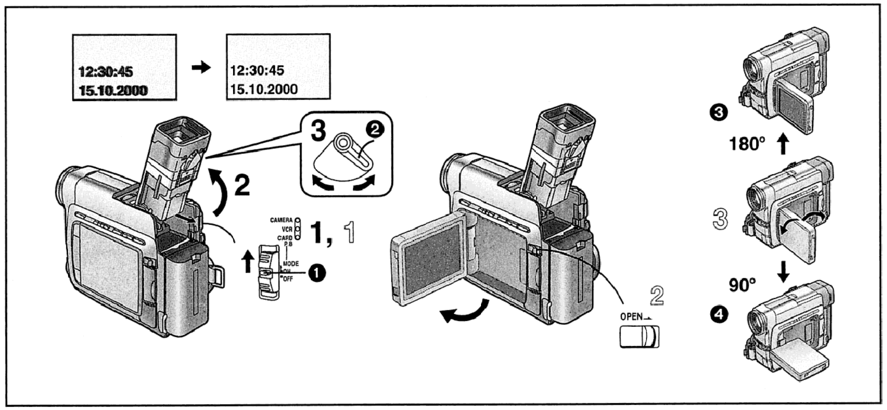
If the Cassette Holder Does Not Slide Back inside
- Press on the [PUSH CLOSE] mark and close the Upper Cassette Compartment Cover securely.
- Turn the Movie Camera off and then on again.
- Check if the Battery is discharged.

If the Cassette Holder Does Not Slide Out
- Close the Lower Cassette Compartment Cover completely and then open it again.
- Check if the Battery is discharged.

■ LP Mode

The desired recording speed can be selected with [REC SPEED] on the [OTHER FUNCTIONS] Sub-Menu.

If you select the LP Mode, the possible recording time is 1.5 times as long as in the SP Mode.
Recording in the LP mode does not deteriorate the picture quality. However, the playback picture may contain mosaic-like patterns and certain functions may be restricted.
- In the following cases, mosaic-like patterns may appear in the playback picture, or the picture may not be played back correctly:
  - When a cassette recorded in the LP Mode on this Movie Camera is played back on other digital video equipment.
  - When a cassette recorded in the LP Mode on other digital video equipment is played back on this Movie Camera.
  - When a cassette recorded in the LP Mode on this Movie Camera is played back on digital video equipment not featuring the LP Mode.
  - In the Slow Motion or Still Advance Playback Mode. (**→ 29, 30**)
  - When using the Camera Search Function. (**→ 33**)
- As the recording track width in the LP Mode is smaller than the head width, recording new sound onto an already recorded cassette (audio dubbing) (**→ 63**) is not possible.



Using the Finder

Before using the Finder, adjust it to your eyesight so that the indications in the Finder are clear and easy to read.

1. **Set the [OFF/ON/MODE] Switch to [ON].**
   While pressing the centre button ❶, slide the switch so that the corresponding Lamp lights.
2. **Slide the Finder backward to its fully extended position and then tilt it upward.**
3. **Adjust by turning the Eyepiece Corrector Lever ❷.**

Note:
Do not leave the Finder exposed to direct sunlight, as its magnifying glass could bundle the light beams and seriously heat-damage the Finder.

Using the LCD Monitor

You can also record while viewing the picture on the opened LCD Monitor.

1. **Set the [OFF/ON/MODE] Switch to [ON].**
   While pressing the centre button ❶, slide the switch so that the corresponding Lamp lights.
2. **Slide the [OPEN ⎯] Lever and turn out the LCD Monitor by approximately 90° in the direction of the arrow.**
   The Finder turns off.
3. **Adjust the angle of the LCD Monitor according to the recording angle.**
   - The LCD Monitor rotates upward a maximum of 180° ❸ and downward by a maximum of 90° ❹ from its normal vertical position. Trying to forcefully rotate it beyond this range could seriously damage the Movie Camera.

Closing the LCD Monitor
Push the LCD Monitor close until it locks with a click.

Handling the Lens Cap

Before you start recording, remove the Lens Cap.

1. **You can attach the removed Lens Cap to the Grip Belt.**
   When not actually recording, always attach the Lens Cap to the Lens to protect it.

Note:
Do not leave the Lens exposed to direct sunlight, as it could bundle the light beams and seriously heat-damage the CCD-Sensor.

Adjusting the Grip Belt

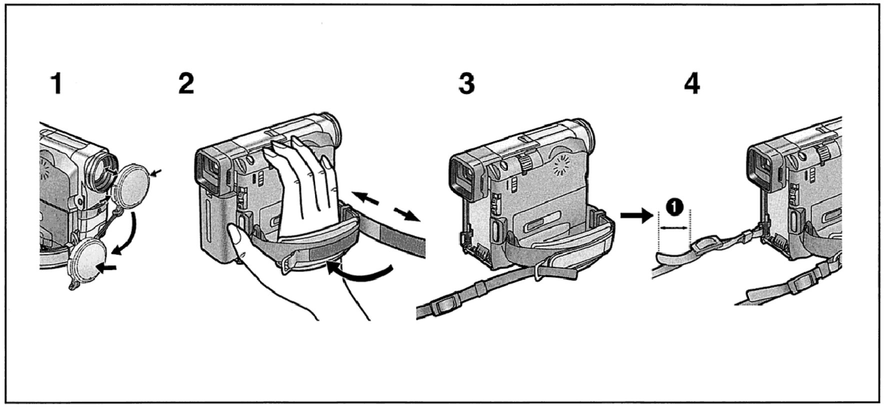
You can adjust the Grip Belt to the size of your hand.

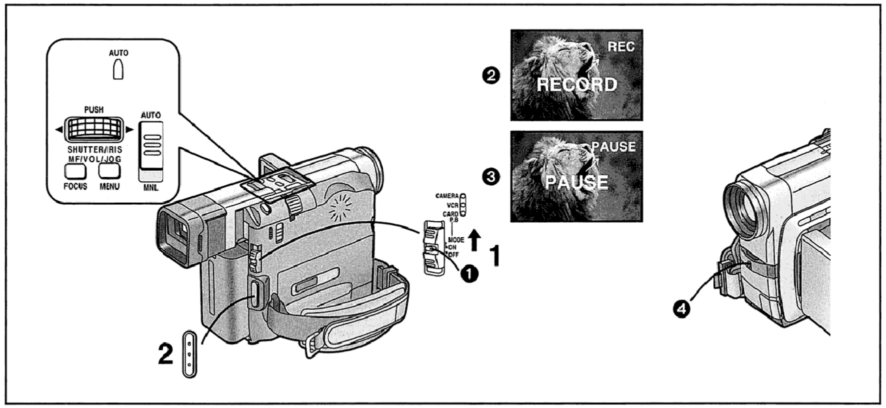
2. **Pass your hand through the Grip Belt and adjust its length. Fold back the end of the Grip Belt to securely fasten the velcro tape closure.**
   When you open or close the Cassette Compartment, push down the buckle of the Grip Belt so that it does not prevent the Cassette Compartment from opening and closing completely.

Attaching the Shoulder Strap

Before you go recording outside, we recommend that you attach the Shoulder Strap to prevent the Movie Camera from dropping accidentally.

3. **Pull the end of the Shoulder Strap through the Shoulder Strap Holder on the Movie Camera.**
4. **Fold the end of the Shoulder Strap back, pull it first through the loop and then the Shoulder Strap Length Adjuster.**
   Pull it out more than 2 cm ❶ from the Shoulder Strap Length Adjuster so that it cannot slip off.





Recording

After setting the [OFF/ON/MODE] Switch to [ON] to turn the Movie Camera on and setting the Mode Selector Switch to [AUTO], you can start recording simply by pressing the Recording Start/Stop Button. In this case, the Movie Camera adjusts the focus and white balance fully automatically.

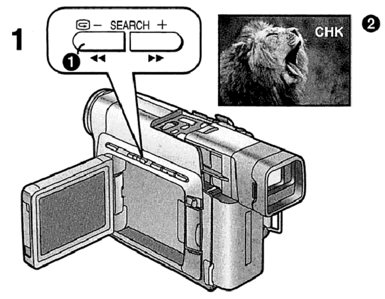
1. **Set the [OFF/ON/MODE] Switch to [ON].**
   While pressing the centre button ❶, slide the switch so that [CAMERA] Lamp lights.
2. **Press the Recording Start/Stop Button.**
   Recording starts. The [RECORD] Indication appears briefly and then changes to [REC] ❷.

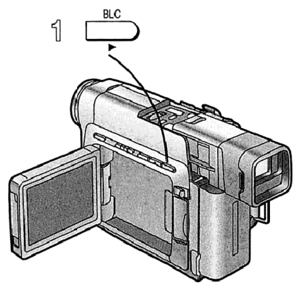
To pause recording:
Press the Recording Start/Stop Button again.
The [PAUSE] Indication appears ❸.

To finish recording:
Set the [OFF/ON/MODE] Switch to [OFF].
It is not necessary to press the centre button in order to slide the switch to [OFF].

- Depending on the light source and recording situation, correct automatic focusing and white balance adjustment may not be possible. In such cases, adjust them manually. Focus: **(➜ 52)**; White Balance: **(➜ 50, 51)**
- Be sure to remove the Lens Cap before setting the [OFF/ON/MODE] Switch to [ON]. If the Lens Cap is still attached to the Lens when the [CAMERA] Lamp lights, the automatic white balance adjustment **(➜ 113)** may not be precise.
- **If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve battery power. To resume recording from this condition, set the [OFF/ON/MODE] Switch to [OFF] and then to [ON] again.**

Recording Lamp (Tally Lamp)
The Recording Lamp lights ❹ during recording to let the people in front of the Movie Camera know that recording is being performed. If you set [REC LAMP] on the [OTHER FUNCTIONS] Sub-Menu to [OFF], the Recording Lamp does not light.





Checking If the Picture Is Recorded

(Recording Check)

To play back the final few seconds of the last recorded scene in the Recording Pause Mode.

1 **Press the Recording Check Button [⊖] ❶ briefly in the Recording Pause Mode.**
The [CHK] Indication ❷ appears.
After checking, the Movie Camera returns to the Recording Pause Mode.

- For Recording Check, the Movie Camera must be in the same mode (SP or LP) as used for recording, otherwise the playback picture is distorted.

Recording Backlit Scenes

(Backlight Compensation)

To prevent the backlit subject from being recorded very dark. (Backlight means that the light falls on the subject from behind, i.e. the subject is between the light source and the Movie Camera.)

1 **Keep the Backlight Button [BLC] pressed.**

The backlight is being compensated as long as you keep the Button pressed, and the subject is recorded more brightly. (The picture brightens up as a whole.)

Returning to Normal Recording
Release the Backlight Button [BLC].

Recording Yourself

(Recording with the LCD Monitor Facing Forward)

This makes it possible to record yourself while viewing the picture on the LCD Monitor or to show the persons in front of the Movie Camera the picture being recorded.

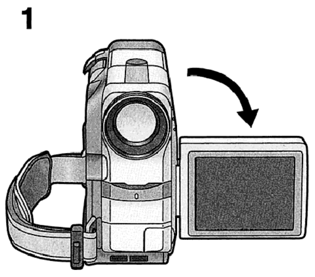
1 **Open the LCD Monitor and turn it so that it faces forward (lens side).**
Opening the LCD Monitor automatically turns off the Finder. However, when you turn the LCD Monitor forward, the picture also appears in the Finder.
This lets you aim the Movie Camera and view the picture in the Finder, while the persons in front of the Movie Camera can check the picture on the LCD Monitor during recording.

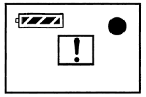
Mirror Mode for the Picture on the LCD Monitor
You are used to looking at yourself in the mirror. Therefore, when recording yourself with the LCD Monitor facing forward, the picture (as it is being recorded) might look unusual and distracting. If you prefer to see yourself on the LCD Monitor in the same way as you see yourself in a mirror, i.e. with the sides reversed, set [SELFSHOOT] on the [DISPLAY SETUP] Sub-Menu to [MIRROR]. However, the picture will still be recorded in the normal, non-reversed way.
This Mirror Mode for the picture on the LCD Monitor works only during recording and in the Recording Pause Mode with the LCD Monitor facing forward. Also, it is completely different from the Mirror Mode of the Digital Effects 1 (**→ 41**).

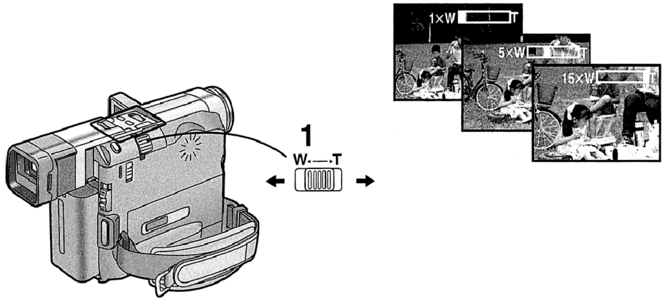
- In the Mirror Mode, only the following indications are displayed.

● : Recording
●❚❚ : Recording Pause
▰▰▰ : Remaining Battery Power

When the General Warning/Alarm Indication [!] appears, turn the LCD Monitor backward so that you can confirm the actual Warning/Alarm Indication.





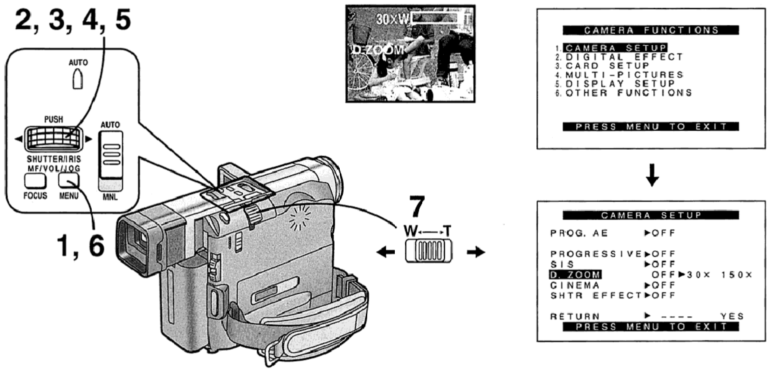


Enlarging Your Subject or Widening the Recording Angle *(Zooming In/Out)*

Recording close-ups of your subjects and recording wide-angle shots add special effects to your videos.

1 **To record a wider view (Zooming-out):**
Push the [W/T] Zoom Lever toward [W].
To enlarge your subject (Zooming-in):
Push the [W/T] Zoom Lever toward [T].
- The Zoom Magnification Indication appears for a few seconds.
- As a general rule, the further you push the [W/T] Zoom Lever toward [W] or [T], the faster the zooming speed.
- In the Recording Pause Mode, if you push the [W/T] Zoom Lever toward [W] or [T] until you feel a click, you can zoom between 1× and 15× in an extremely fast 0.5 second. **(Jet Zoom)**
- During recording, zooming between 1× and 15× is possible in as short a time as approximately 1.0 second. However, even if you push the [W/T] Zoom Lever until you feel a click, it is not possible to zoom faster than in 1.0 second. Therefore, we do not recommend that you push the [W/T] Zoom Lever all the way until you feel a click, as a click sound could be recorded in this case.
- During very fast zooming, the picture may temporarily go out of focus.
- When you have zoomed to the tele setting, precise focusing is only possible on subjects no closer than 1.2 metres.

Recording Extra Close-up Shots of Small Subjects (Macro Close-up Function)
When the zoom magnification is 1×, the Movie Camera can focus on subjects down to a distance of approximately 35 mm between lens and subject. This allows recording very small subjects such as insects.


2, 3, 4, 5
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
1, 6
7
W—T
30×W
D.ZOOM
CAMERA FUNCTIONS
1. CAMERA SETUP
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
CAMERA SETUP
PROG. AE ▶OFF
PROGRESSIVE▶OFF
SIS ▶OFF
D. ZOOM OFF▶30× 150×
CINEMA ▶OFF
SHTR EFFECT▶OFF
RETURN ▶ ---- YES
PRESS MENU TO EXIT

Enlarging Your Subjects Even More
(Digital Zooming)

This function is convenient when you want to enlarge a very distant subject even more than is possible with the normal (optical) zoom which offers a magnification range of 1×–15×. For the Digital Zoom Function, you can choose between up to 30× and up to 150× magnification.

1 Press the [MENU] Button.
The [CAMERA FUNCTIONS] Main-Menu appears.

2 Turn the [PUSH] Dial to select [CAMERA SETUP].

3 Press the [PUSH] Dial.
The [CAMERA SETUP] Sub-Menu appears.

4 Turn the [PUSH] Dial to select [D.ZOOM].

5 Press the [PUSH] Dial to select [30×] or [150×].

- **30×:** Digital zooming up to 30×.
- **150×:** Digital zooming up to 150×.
- If [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON], it is not possible to select either of these settings.

6 Press the [MENU] Button to exit the menu.

7 Push the [W/T] Zoom Lever toward [W] or [T] to zoom in or out on the subject.

- The higher the Digital Zoom Magnification is, the lower is the picture quality.

Cancelling the Digital Zoom Function
Set [D.ZOOM] on the [CAMERA SETUP] Sub-Menu to [OFF].

- If you zoom to 15× or higher (digital zoom range) when [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [AUTO], the Progressive Photoshot Mode is automatically cancelled.
- When you have zoomed to 15× or higher (digital zoom range), manually adjusting the white balance or selecting any of the preset white balance modes is not possible.

Recording Still Pictures on the Cassette (Photoshot)

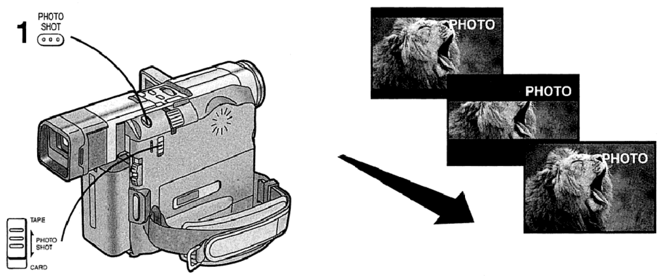
With this function, you can record still pictures with sound for approximately 7 seconds each.

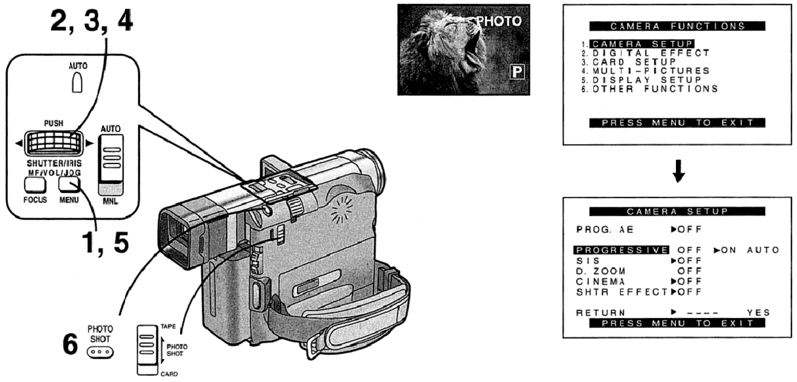
1 Press the [PHOTO SHOT] Button in the Recording Pause Mode.
The Movie Camera records a still picture for approximately 7 seconds and then switches back to the Recording Pause Mode.

- It is not possible to use the Photoshot Function during a normal recording.
- If you set [SHTR EFFECT] on the [CAMERA SETUP] Sub-Menu to [ON], the screen blinks briefly and a simulated shutter click sound can be heard when you press the [PHOTO SHOT] Button. This audiovisual effect is also recorded.
- With the still pictures that you have recorded in the Photoshot Mode, you can do the following:
  - Index Search (**➜ 35, 36**)
    (However, searching for the picture(s) recorded at the beginning of the tape may not be possible.)
  - Automatic printing (**➜ 85**)
- The visual shutter effect and click sound may occur with slight delay after recording of the still picture has started.
- The picture quality deteriorates slightly.

Continuous Photoshot
If you set [SHTR EFFECT] on the [CAMERA SETUP] Sub-Menu to [ON] and keep the [PHOTO SHOT] Button pressed in the Recording Pause Mode, the Movie Camera automatically records still pictures successively at intervals of approximately 0.7 seconds until you release the button.

- One more still picture may be recorded after you release the [PHOTO SHOT] Button.
- As the still pictures recorded in the Continuous Photoshot Mode are not marked with photoshot index signals, they cannot be located by using the Photoshot Index Search Function and printed with the Auto Print Function.
- When [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON] or [AUTO], the Continuous Photoshot Function cannot be used.


1
PHOTO SHOT
TAPE
PHOTO SHOT
CARD
PHOTO
PHOTO
PHOTO


2, 3, 4
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
1, 5
6
PHOTO SHOT
TAPE
PHOTO SHOT
CARD
PHOTO
P
CAMERA FUNCTIONS
1. CAMERA SETUP
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
CAMERA SETUP
PROG. AE ▶OFF
PROGRESSIVE OFF ▶ON AUTO
SIS ▶OFF
D. ZOOM OFF
CINEMA ▶OFF
SHTR EFFECT▶OFF
RETURN ▶ ---- YES
PRESS MENU TO EXIT

Recording Still Pictures on the Cassette (Continued)

■ Progressive Photoshot

The Progressive Photoshot Function lets you record still pictures with higher resolution than the normal Photoshot Function. This is ideal for example for pictures that you want to print with a Digital Video Printer or import into a computer.

1 Press the [MENU] Button.
The [CAMERA FUNCTIONS] Main-Menu appears.

2 Turn the [PUSH] Dial to select [CAMERA SETUP] and then press the [PUSH] Dial.
The [CAMERA SETUP] Sub-Menu appears.

3 Turn the [PUSH] Dial to select [PROGRESSIVE].

4 Press the [PUSH] Dial to select [ON] or [AUTO].

5 Press the [MENU] Button to exit the menu.
The [P] Indication appears.

6 Press the [PHOTO SHOT] Button in the Recording Pause Mode.
The Movie Camera records a still picture for approximately 7 seconds and then switches back to the Recording Pause Mode.

- With this function, you can take still pictures that are recorded as frames with higher resolution. However, this Frame Mode cannot be used for normal recording of motion pictures.
- When [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON] or [AUTO], the Continuous Photoshot Function cannot be used.
- When you press the [PHOTO SHOT] Button, the Movie Camera emits a click sound. However, this is normal and not a malfunction.

Notes about the Settings for [PROGRESSIVE]
When the [P] Indication is displayed, you can use the Progressive Photoshot Function.

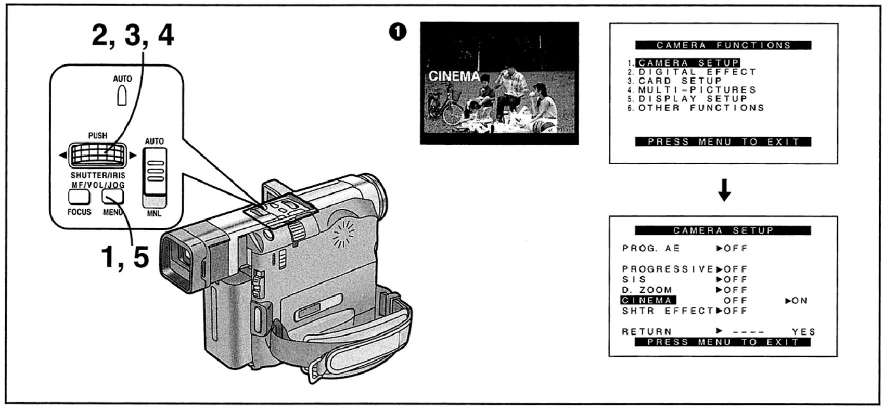
- When you record a still picture in the Progressive Photoshot Mode while [PROG.AE] on the [CAMERA SETUP] Sub-Menu is set to Sports Mode [ ] (→ 39) or Portrait Mode [ ] (→ 39), the picture brightness may vary from picture to picture.

When [PROGRESSIVE] Is Set to [ON]:
You can always use the Progressive Photoshot Function.
In this case, however, the following functions are deactivated;

- Digital Effect Modes in [EFFECT1] (→ 41)
- Digital Zoom [D.ZOOM] (→ 21)
- Shutter Speeds of 1/750 s and faster (→ 53)

When [PROGRESSIVE] Is Set to [AUTO]:
In the following cases, using the Progressive Photoshot Function is not possible.

- When the zoom magnification is approximately 15× or higher.
- When the shutter speed is 1/750 s or faster.
- When [EFFECT1] is set to [WIPE], [MIX], [STROBE], [GAINUP], [TRACER], [MOSAIC] or [MIRROR].
- When a picture is displayed in the Multi-Picture Mode or in the Picture-in-Picture Mode.



```
CAMERA FUNCTIONS
1.CAMERA SETUP
2.DIGITAL EFFECT
3.CARD SETUP
4.MULTI-PICTURES
5.DISPLAY SETUP
6.OTHER FUNCTIONS

PRESS MENU TO EXIT
```

```
CAMERA SETUP
PROG. AE      ▶OFF

PROGRESSIVE▶OFF
SIS           ▶OFF
D. ZOOM       ▶OFF
CINEMA         OFF      ▶ON
SHTR EFFECT▶OFF

RETURN        ▶ ----    YES
PRESS MENU TO EXIT
```

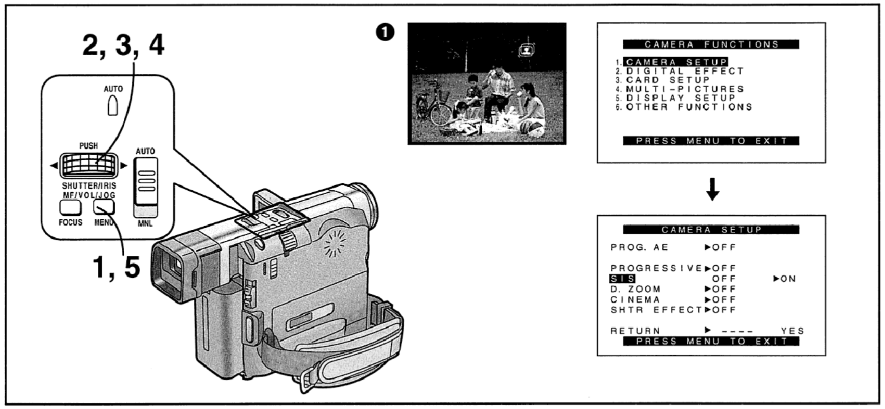
Recording in the Cinema Mode
(Cinema Mode)

This mode lets you record in the cinema-like wide-screen format.

1. **Press the [MENU] Button.**
The [CAMERA FUNCTIONS] Main-Menu appears.
2. **Turn the [PUSH] Dial to select [CAMERA SETUP] and then press the [PUSH] Dial.**
The [CAMERA SETUP] Sub-Menu appears.
3. **Turn the [PUSH] Dial to select [CINEMA].**
4. **Press the [PUSH] Dial to select [ON].**
Black bars appear at the top and bottom of the screen ❶.
5. **Press the [MENU] Button to exit the menu.**

Cancelling the Cinema Mode
Set [CINEMA] on the [CAMERA SETUP] Sub-Menu to [OFF].

- Using the Cinema Mode does not widen the recording angle.
- A picture displayed in the Multi-Picture Mode cannot be displayed in the Cinema Mode.
- If you play back the picture recorded in the Cinema Mode on a wide-screen (16:9) format TV, the size of the playback picture is automatically adjusted to match the format of the TV screen. For details, read the TV's operating instructions.



```
CAMERA FUNCTIONS
1.CAMERA SETUP
2.DIGITAL EFFECT
3.CARD SETUP
4.MULTI-PICTURES
5.DISPLAY SETUP
6.OTHER FUNCTIONS

PRESS MENU TO EXIT
```

```
CAMERA SETUP
PROG. AE      ▶OFF

PROGRESSIVE▶OFF
SIS            OFF      ▶ON
D. ZOOM       ▶OFF
CINEMA        ▶OFF
SHTR EFFECT▶OFF

RETURN        ▶ ----    YES
PRESS MENU TO EXIT
```

Recording with Minimised Camera Shake (Super Image Stabilizer)

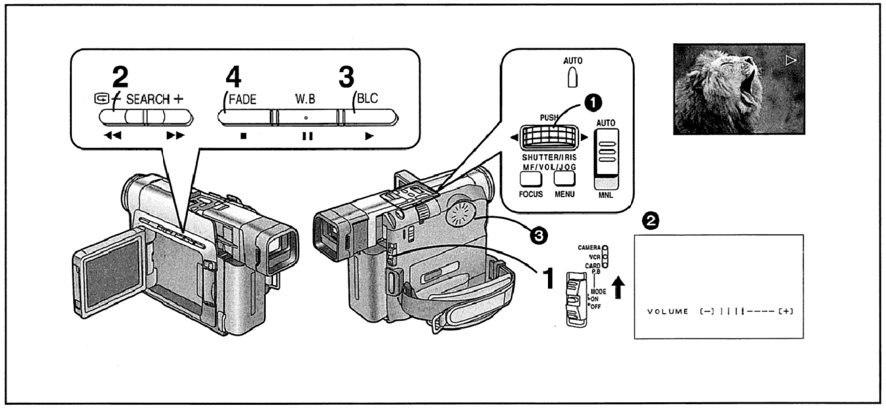
In recording situations where shaking of the Movie Camera is likely to happen, for example when you have zoomed in on a distant subject or when you record while walking, you can use this function to stabilize the image.

- In case of very strong camera shake, it may not be possible to stabilize the picture.

1. **Press the [MENU] Button.**
The [CAMERA FUNCTIONS] Main-Menu appears.
2. **Turn the [PUSH] Dial to select [CAMERA SETUP] and then press the [PUSH] Dial.**
The [CAMERA SETUP] Sub-Menu appears.
3. **Turn the [PUSH] Dial to select [SIS].**
4. **Press the [PUSH] Dial to select [ON].**
5. **Press the [MENU] Button to exit the menu.**
The [ ] Indication ❶ appears.

- In a dimly lit place, the Super Image Stabilizer Function may not work. In this case, the [ ] Indication flashes.
- If [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu has been set to [GAINUP], the Super Image Stabilizer Function cannot be used. In this case, the [ ] Indication flashes.
- Under fluorescent lamps, the picture brightness may fluctuate and the colours may be unnatural.
- After-image distortion may occur.
- When you use a tripod, we recommend that you turn the Super Image Stabilizer Function off.

Cancelling the Super Image Stabilizer Function
Set [SIS] on the [CAMERA SETUP] Sub-Menu to [OFF].



```
VOLUME (−) ||||---- (+)
```

Viewing the Just Recorded Scenes on the Movie Camera (Playback)

You can play back recorded scenes right after recording.

1. **Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.**
   - The [VCR] Lamp lights.
2. **Press the Rewind Button [◀◀] to rewind the tape.**
   - Rewind the tape to the point where the recording was started.
   - If the tape reaches the beginning, rewinding automatically stops.
3. **Press the Play Button [▶] to start playback.**
4. **To stop playback:**
Press the Stop Button [■].

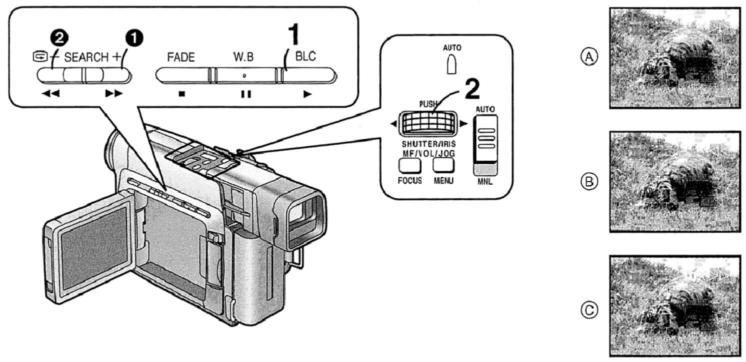
■ Adjusting the Sound Volume

Keep the [PUSH] Dial ❶ pressed until the [VOLUME] Indication ❷ appears. Then, turn the [PUSH] Dial to adjust the volume. After adjusting, press the [PUSH] Dial to make the [VOLUME] Indication disappear.
To adjust the volume with the Remote Controller, press the [T] or [W] Button to make the [VOLUME] Indication appear. You can then increase the volume by pressing the [T] Button or decrease it by pressing the [W] Button. A few seconds after finishing the adjustment, the [VOLUME] Indication disappears.

- Only the volume of the sound from the Movie Camera's built-in speaker ❸ can be adjusted.
- When using the Playback Zoom Function, it is not possible to adjust the sound volume.

■ Repeat Playback

If you keep the Playback Button [▶] pressed for more than 5 seconds, the Movie Camera switches over to the Repeat Playback Mode and the [R ▷] Indication appears. To cancel the Repeat Playback Mode, set the [OFF/ON/MODE] Switch to [OFF].



Searching for a Scene That You Want to Play Back

Cue Playback Ⓐ
Keep the Cue Button [▶▶] ❶ pressed during playback.

Review Playback Ⓑ
Keep the Review Button [◀◀] ❷ pressed during playback.

Search Lock Function
For longer Cue or Review Playback, press the Cue Button [▶▶] or the Review Button [◀◀] only briefly. As this locks the search function, you do not need to keep the button pressed for a long time.

- To resume normal playback, press the Play Button [▶].
- In Cue and Review Playback, pictures with fast-moving subjects may contain mosaic-like patterns.

Hyper Check Function

- If you press the Fast-forward Button [▶▶] during fast-forwarding of the tape or the Rewind Button [◀◀] during rewinding of the tape, Cue Playback or Review Playback continues for as long as you keep the Button pressed.
- At the beginning and end of Cue Playback or Review Playback, some momentary picture distortion may occur.

Variable Speed Search Function Ⓒ
It is possible to change the speed of Cue Playback or Review Playback.

1 **Press the Play Button [▶] during playback.**

2 **Turn the [PUSH] Dial to select the desired search speed.**

The Variable Speed Search Function offers the following 6 different playback speeds both in forward and reverse directions: 1/5× (slow playback in SP Mode only), 1/3× (slow playback in LP Mode only), 1×, 2×, 5×, 10×, 20×.

Returning to Normal Playback
Press the Play Button [▶]. Playback continues at normal speed.

- During Variable Speed Search, mosaic-like patterns appear in the picture.
- When using the Variable Speed Search Function, the sound is muted.

Playing Back in Slow Motion
(Slow Motion Playback)

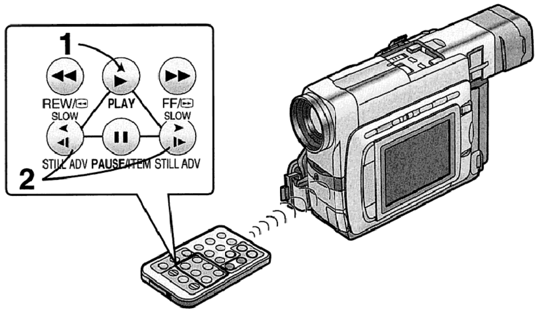
1 **Press the Play Button [▶].**

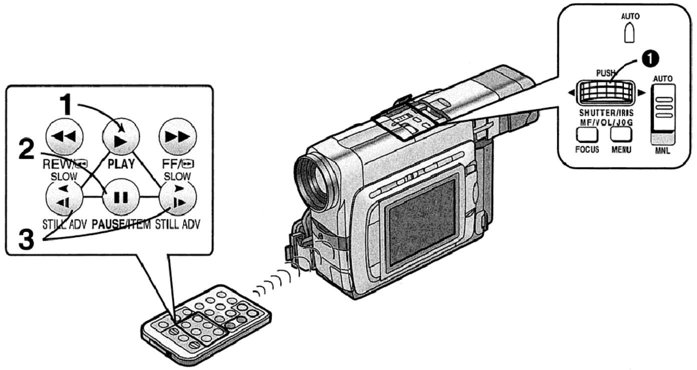
2 **Press the Slow Motion/Still Advance Button [◂I] or [I▸] on the Remote Controller.**
Pressing the [◂I] Button starts slow motion playback in reverse direction, and pressing the [I▸] Button starts slow motion playback in forward direction.

Scenes recorded in the SP Mode are played back at approximately 1/5th of the normal speed.
Scenes recorded in the LP Mode are played back at approximately 1/3rd of the normal speed.

- During slow motion playback in reverse direction, the Time Code Indication may not be accurate.
- When you play back the picture recorded in the Picture-in-Picture Mode (➔ 41) or Multi-Picture Mode (➔ 41), the picture may shake vertically.

Resuming Normal Playback
Press the Play Button [▶].
Playback continues at normal speed.





Playing Back Still Pictures and Advancing Them One by One
(Still Playback/Still Advance Playback)

You can freeze the action during playback and advance the still pictures one by one.

1 **Press the Play Button [▶].**

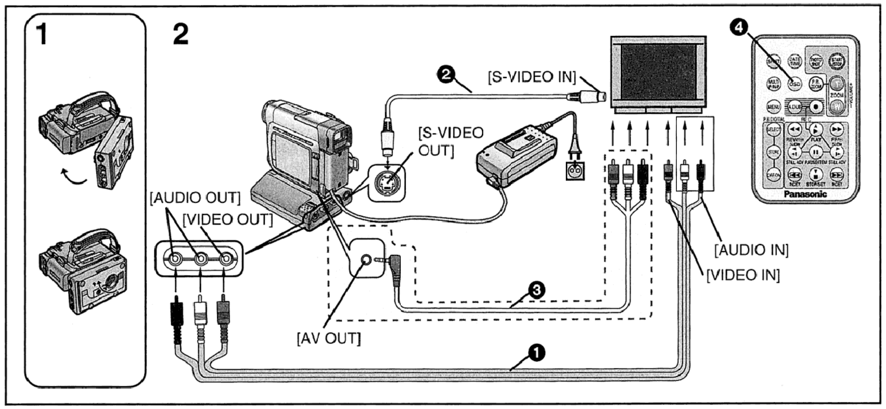
2 **Press the Pause Button [❚❚].**
The playback picture stops in the Still Playback Mode.

3 **Press the Slow Motion/Still Advance Button [◂I] or [I▸] on the Remote Controller.**
Pressing the [◂I] Button advances the still picture one by one in reverse direction. Pressing the [I▸] Button advances the still picture one by one in forward direction.

- Each press of the [◂I] Button advances to the next still picture in reverse direction. Each press of the [I▸] Button advances to the next still picture in forward direction. Keeping either button pressed continuously advances the still picture one by one until you release the button.
- If you leave the Movie Camera in the Still Playback Mode for more than 6 minutes, it switches over to the Stop Mode to protect the video heads against excessive wear.
- During Still Advance Playback, the Time Code Indication may not be accurate.
- During Still Playback, adjusting the sound volume is not possible.

Resuming Normal Playback
Press the Play Button [▶].
Playback continues at normal speed.

Using the Jog Dial (Jog Playback)
By turning the Jog Dial ([PUSH] Dial) ❶ on the Movie Camera in the Still Playback Mode, you can advance the still pictures one by one in forward or reverse direction.



Playing Back on a TV

(With the Output Terminal Box [AV ONE TOUCH STATION] Attached)

Attaching the Output Terminal Box [AV ONE TOUCH STATION] to the Movie Camera makes it possible to play back recorded scenes on a TV.

1. **Attach the Output Terminal Box [AV ONE TOUCH STATION].**
2. **Connect the Video and Audio Output Socket on the Output Terminal Box [AV ONE TOUCH STATION] with the Video and Audio Input Sockets on the TV.**
   Use the AV Cable (PHONO-PHONO) ❶ to connect to the TV. If your TV is equipped with an S-Video Socket, also connect the S-Video Cable ❷.

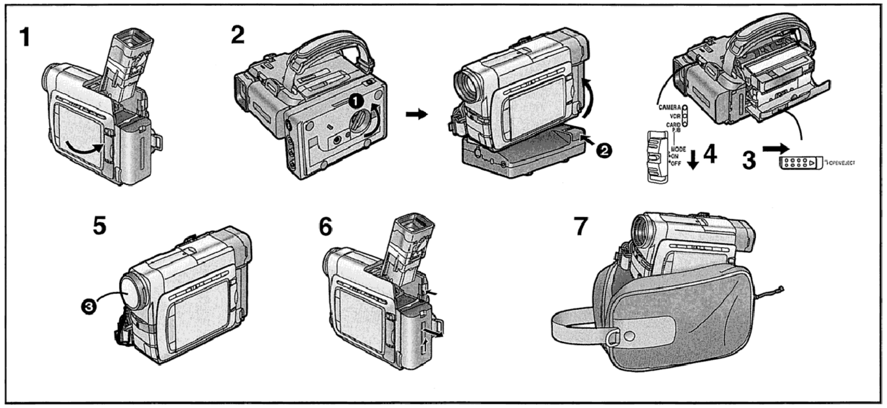
Easy Playback on a TV
Instead of connecting the Movie Camera to the TV through the Output Terminal Box [AV ONE TOUCH STATION], you can use the AV Cable (PHONO-M3) ❸ to connect [AV OUT] on the Movie Camera directly to the Video and Audio Input Sockets on the TV. The plug for the [AV OUT] Socket must be inserted completely.

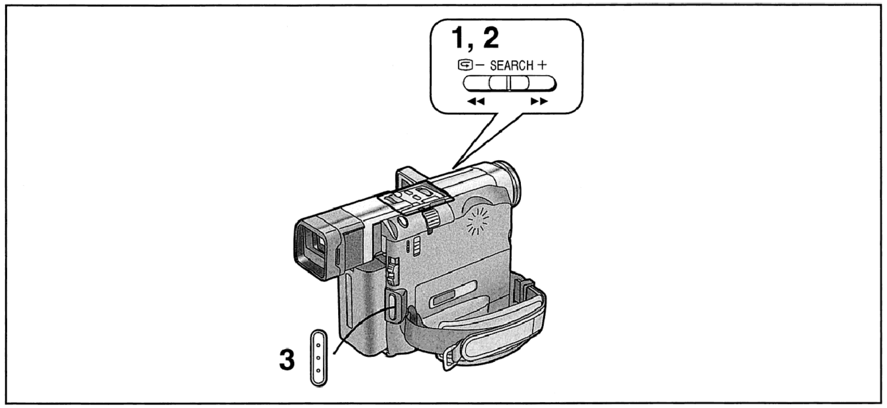
- Do not connect both supplied AV Cables to the TV at the same time.
- Before connecting, turn off both the Movie Camera and the TV.
- Before attaching the Output Terminal Box [AV ONE TOUCH STATION] to the Movie Camera, clean the Multi Terminal on the underside of the Movie Camera.
- If a cassette recorded with copyright protection signal (Copy Guard) is played back, the picture is distorted by mosaic-like patterns. However, scenes recorded with this Movie Camera do not contain a copyright protection signal.

Making the Indications Appear on the TV Screen
Press the [OSD] Button ❹ on the Remote Controller.
The On-Screen Indications also appear on the TV screen.

After Use

1. **Close the LCD Monitor.**
2. **Loosen the locking screw ❶ and remove the Output Terminal Box [AV ONE TOUCH STATION] while pressing the [PUSH RELEASE] Button ❷.**
   Hold both the Movie Camera and the Output Terminal Box firmly to prevent them from dropping.
3. **Take out the cassette. (➔ 13)**
4. **Set the [OFF/ON/MODE] Switch to [OFF].**
5. **Attaching the Lens Cap**
   After use, attach the supplied Lens Cap ❸ to the Lens to protect it.
6. **Remove the Battery and retract the Finder.**
   (➔ 11)
7. **Insert the Movie Camera into the Soft Bag.**





Viewing Recorded Scenes During Recording Pause (Camera Search)

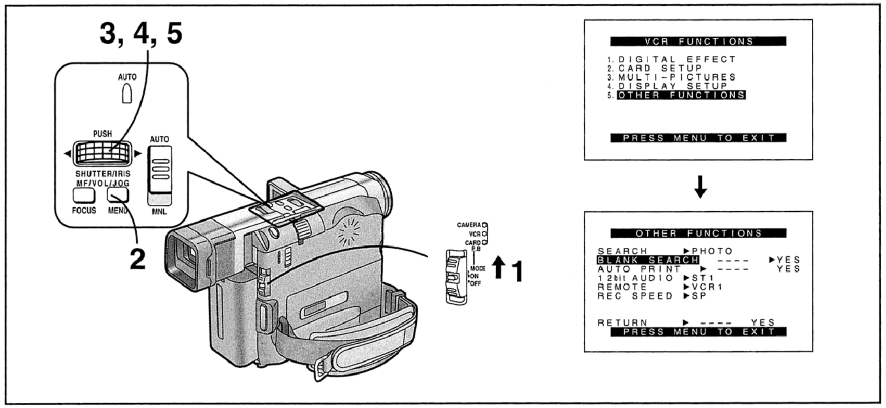
You can view recorded scenes when the Movie Camera is in the Recording Pause Mode.
The Camera Search Function is convenient to search for a scene from which you want to start recording a new scene with smooth scene-to-scene transition.

1. **Keep the Reverse Search Button [−SEARCH] or the Forward Search Button [SEARCH+] pressed for more than 1 second.**
   Pressing the [−SEARCH] Button plays back the picture in reverse direction.
   Pressing the [SEARCH+] Button plays back the picture in forward direction.

Starting to Record from the Desired Position

2. **Release the pressed Search Button.**
   The Movie Camera is in the Recording Pause Mode.
3. **Press the Recording Start/Stop Button to start recording.**
   The Movie Camera starts recording a new scene with smooth scene-to-scene transition.

- In the Camera Search Mode, the picture may contain mosaic-like patterns. However, this is a phenomenon particular to digital video and completely normal.
- If the Recording Speed Mode (SP/LP) of the previous and the new recording are different, the playback picture may be distorted.


3, 4, 5
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
2
CAMERA
VCR
CARD
P.B
MODE
ON
OFF
1
VCR FUNCTIONS
1. DIGITAL EFFECT
2. CARD SETUP
3. MULTI-PICTURES
4. DISPLAY SETUP
5. OTHER FUNCTIONS
PRESS MENU TO EXIT
OTHER FUNCTIONS
SEARCH ▶PHOTO
BLANK SEARCH ---- ▶YES
AUTO PRINT ▶ ---- YES
12bit AUDIO ▶ST1
REMOTE ▶VCR1
REC SPEED ▶SP
RETURN ▶ ---- YES
PRESS MENU TO EXIT

Searching for the End of the Recorded Part on a Cassette (Blank Search)

With the Blank Search Function, you can quickly locate the end of the recorded part on a cassette (or a blank part between recordings).

1 **Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.**
The [VCR] Lamp lights.

2 **Press the [MENU] Button.**
The [VCR FUNCTIONS] Main-Menu appears.

3 **Turn the [PUSH] Dial to select [OTHER FUNCTIONS] and then press the [PUSH] Dial.**
The [OTHER FUNCTIONS] Sub-Menu appears.

4 **Turn the [PUSH] Dial to select [BLANK SEARCH].**

5 **Press the [PUSH] Dial to select [YES].**
Approximately 1 second before the end of the last recorded scene, the Movie Camera switches over to the Still Playback Mode.

- If there is no blank part on a cassette, the Movie Camera stops at the end of the tape.
- If you set the [OFF/ON/MODE] Switch to [CAMERA] and then start recording after the Blank Search has finished, the new scene will be joined to the end of the last recorded scene with a smooth transition.
- To cancel the Blank Search before it finishes, press the [■] Button.

Searching for the Beginning of Recorded Scenes Marked with Index Signal (Index Search)

To allow easy searching for desired scenes, this Movie Camera automatically records index signals during recording as follows:

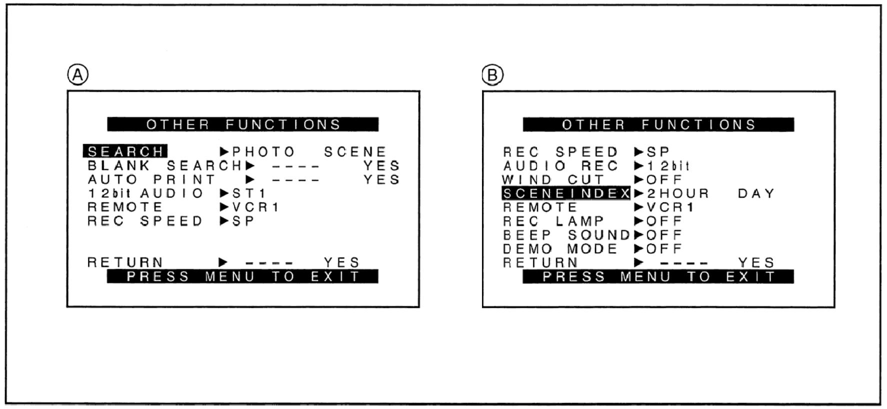
❶ Photoshot Index Signal
To search for still pictures recorded in the Photoshot Mode **(➔ 22)** and to use for automatic printing **(➔ 85)**.
A photoshot index signal is automatically recorded every time you record a still picture in the Photoshot Mode.
- However, in the Continuous Photoshot Mode **(➔ 22)**, no photoshot index signals are recorded.

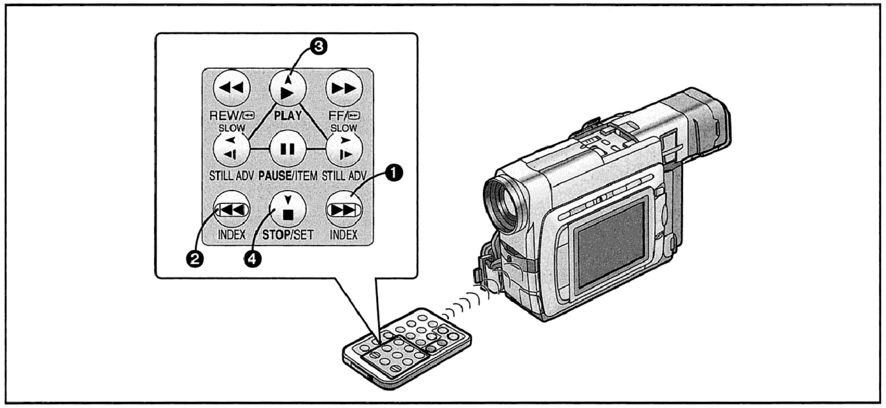
❷ Scene Index Signal
To search for the beginning of recorded scenes.
A scene index signal is automatically recorded in the following cases:
- When you start recording after inserting a cassette.
However, if you switch the Movie Camera from the VCR Mode over to the Camera Mode or set the date and/or time before you start recording, no index signal is recorded.
- According to the setting of [SCENEINDEX] on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu:

[2HOUR]: An index signal is recorded when recording is restarted after a lapse of more than 2 hours.
[DAY]: An index signal is recorded when recording is restarted after the date has changed since the last recording.

(While an index signal is being recorded, the [INDEX] Indication flashes for a few seconds.)

Ⓐ: [OTHER FUNCTIONS] Sub-Menu in the VCR Mode
Ⓑ: [OTHER FUNCTIONS] Sub-Menu in the Camera Mode


Ⓐ
OTHER FUNCTIONS
SEARCH ▶PHOTO SCENE
BLANK SEARCH▶ ---- YES
AUTO PRINT ▶ ---- YES
12bit AUDIO ▶ST1
REMOTE ▶VCR1
REC SPEED ▶SP
RETURN ▶ ---- YES
PRESS MENU TO EXIT
Ⓑ
OTHER FUNCTIONS
REC SPEED ▶SP
AUDIO REC ▶12bit
WIND CUT ▶OFF
SCENEINDEX▶2HOUR DAY
REMOTE ▶VCR1
REC LAMP ▶OFF
BEEP SOUND▶OFF
DEMO MODE ▶OFF
RETURN ▶ ---- YES
PRESS MENU TO EXIT

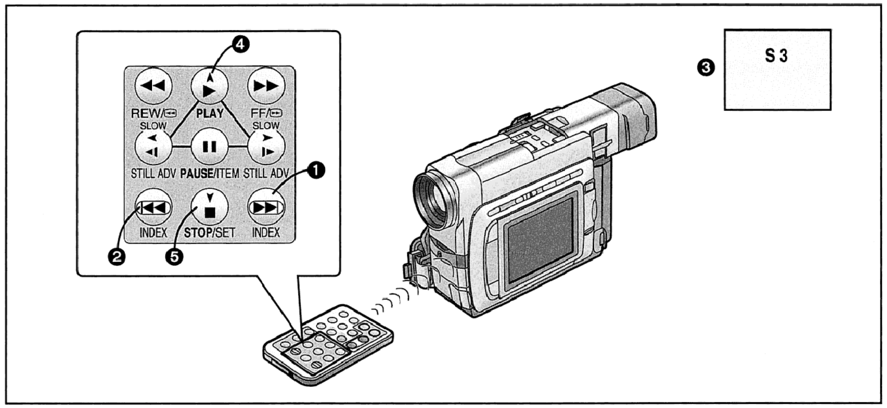

❸
REW/⊖
SLOW
PLAY
FF/⊕
SLOW
STILL ADV
PAUSE/ITEM
STILL ADV
❶
INDEX
STOP/SET
INDEX
❷
❹

Searching for Photoshot Pictures
(Photoshot Index Search)
- Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.
- Set [SEARCH] on the [OTHER FUNCTIONS] Sub-Menu to [PHOTO].

Photoshot Index Search in Forward Direction
Press the Index Button [▶▶|] ❶ on the Remote Controller.

Photoshot Index Search in Reverse Direction
Press the Index Button [|◀◀] ❷ on the Remote Controller.

- At every press of the corresponding button, the tape is fast-forwarded or rewound to the next still picture recorded in the Photoshot Mode.
After reaching the next still picture, the still picture is played back continually, however the sound only for approximately 4 seconds. (If you leave the Movie Camera in the Still Playback Mode for more than 6 minutes, it switches over to the Stop Mode to protect the video heads against excessive wear.)
- The Photoshot Index Search may not work correctly for still pictures recorded near the beginning of the tape.
- As no photoshot index signals are recorded for still pictures recorded in the Continuous Photoshot Mode **(➔ 22)**, the Photoshot Index Search Function cannot be used to search for these still pictures.
- If you keep the [|◀◀] or [▶▶|] Button pressed for more than 2 seconds, the Intro Search Function is activated and it plays back all still pictures recorded in the Photoshot Mode on the cassette one after another for a few seconds each.
(To cancel the Intro Search Function, press the Play Button [▶] ❸ or the Stop Button [■] ❹.)



Searching for the Beginning of Recorded Scenes (Scene Index Search)

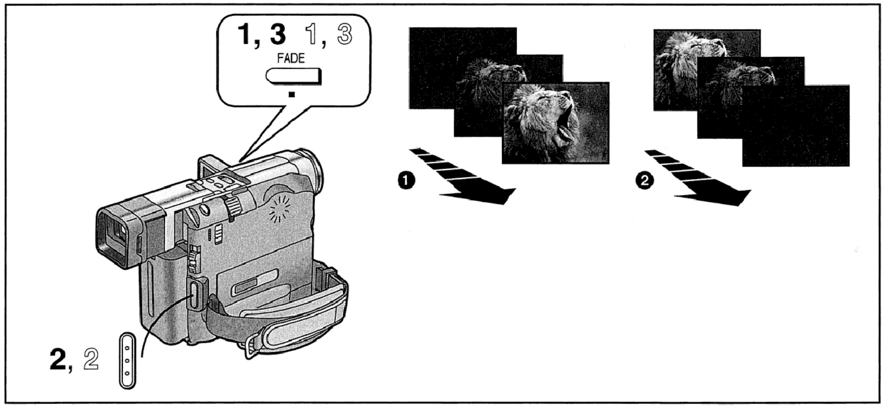
- Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.
- Set [SEARCH] on the [OTHER FUNCTIONS] Sub-Menu to [SCENE].

Scene Index Search in Forward Direction
Press the Index Button [▶▶I] ❶ on the Remote Controller.

Scene Index Search in Reverse Direction
Press the Index Button [I◀◀] ❷ on the Remote Controller.

- When you briefly press the corresponding button once, the [S 1] Indication appears and the search for the next scene marked with an index signal starts. After the Scene Index Search has started, every time you press the button, the indication changes successively from [S 2] to [S 9], and the beginning of the scene corresponding to the selected number is located. ❸ After reaching the desired scene, playback starts automatically. (At a time, Scene Index Search in forward or reverse direction is possible up to the ninth scene marked with index signal from the present tape position.)

- If the interval between two scene index signals is less than 1 minute, the Scene Index Search may not work correctly.
- The Scene Index Search may not work correctly for scenes recorded near the beginning of the tape.
- If you keep the [I◀◀] or [▶▶I] Button pressed for more than 2 seconds, the Intro Search Function is activated and it plays back the beginning of all scenes marked with an index signal on the cassette one after another for a few seconds each. (To cancel the Intro Search Function, press the Play Button [▶] ❹ or the Stop Button [■] ❺.)



Fading In/Out

Fading In ❶
Fading-in lets you make the picture and sound appear gradually from a black screen at the beginning of a scene.

1 **With the Movie Camera in the Recording Pause Mode, keep the Fade Button [FADE] pressed.**
The picture gradually disappears.

2 **When the picture has completely disappeared, press the Recording Start/Stop Button to start recording.**

3 **Approximately 3 seconds after the recording has started, release the Fade Button [FADE].**
The picture gradually appears again.

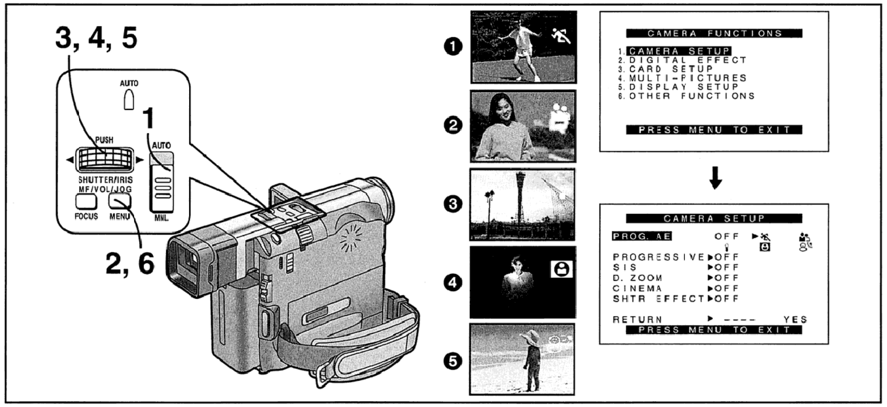
Fading Out ❷
Fading-out lets you make the picture and sound disappear gradually into a black screen at the end of a scene.

① **During recording, keep the Fade Button [FADE] pressed.**
The picture gradually disappears.

② **After the picture has completely disappeared, press the Recording Start/Stop Button to stop recording.**
The Movie Camera is in the Recording Pause Mode.

③ **Release the Fade Button [FADE].**

Fading-in and fading-out cannot be used when recording still pictures in the Photoshot or Multi-Picture Mode, and for the small still picture in the Picture-in-Picture Mode.



Recording In Special Situations
(Programme AE)

This function lets you select Automatic Exposure settings optimized for special recording situations.

1 **Set the Mode Selector Switch to [MNL].**
The [MNL] Indication appears.

2 **Press the [MENU] Button.**
The [CAMERA FUNCTIONS] Main-Menu appears.

3 **Turn the [PUSH] Dial to select [CAMERA SETUP] and then press the [PUSH] Dial.**
The [CAMERA SETUP] Sub-Menu appears.

4 **Turn the [PUSH] Dial to select [PROG.AE].**

5 **Press the [PUSH] Dial to select the desired mode ([ ], [ ], [ ], [ ] or [ ]).**

6 **Press the [MENU] Button to exit the menu.**
The indication of the selected mode appears.

[ ] Sports Mode ❶
To record scenes with fast-moving subjects such as sports scenes.
[ ] Portrait Mode ❷
To make subjects stand out sharply from the background.
[ ] Low Light Mode ❸
To record dark scenes more brightly.
[ ] Spotlight Mode ❹
To record subjects under bright spotlights such as at a party, in the theatre, etc.
[ ] Surf & Snow Mode ❺
To record subjects in brightly lit surroundings such as on a ski slope, beach, etc.

Cancelling the Programme AE Function
Set [PROG.AE] on the [CAMERA SETUP] Main-Menu to [OFF]. Or set the Mode Selector Switch to [AUTO].

It is not possible to adjust the shutter speed (➜ 53) or the iris value (➜ 54) when one of the Programme AE Modes is selected.

Sports Mode
- When playing back scenes recorded in the Sports Mode, you can enjoy slow motion and still playback of very sharp images with fine details.
- During normal playback, movements in the picture may not be smooth.
- Avoid recording under fluorescent, mercury-vapour or natrium lamps in this mode, as the colour and the brightness of the playback picture might fluctuate.
- When recording subjects lit by strong lights or with much light reflection, the playback picture may contain vertical streaks of light.
- When the scene is not sufficiently lit, the [ ] Indication flashes.
- When using this mode for recording indoors, the playback picture may flicker.
- It is not possible to use the Sports Mode [ ] together with the Gain-up Mode [GAINUP].
- When recording still pictures in the Progressive Photoshot Mode while the Sports Mode is activated, the brightness of the recorded still pictures may be unstable.

Portrait Mode
- When using this mode for recording indoors, the playback picture may flicker.
- It is not possible to use the Portrait Mode [ ] together with the Gain-up Mode [GAINUP].
- When recording still pictures in the Progressive Photoshot Mode while the Portrait Mode is activated, the brightness of the recorded still pictures may be unstable.

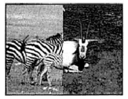
Low Light Mode
- It may not be possible to sufficiently brighten up extremely dark scenes.

Spotlight Mode
- When using this mode, the recorded picture may be extremely dark.
- If a subject is extremely bright, the recorded picture may be whitish.

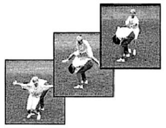
Surf & Snow Mode
- If a subject is extremely bright, the recorded picture may be whitish.

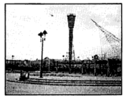
❶

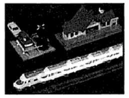
❷

❸


❹

❺


❻


❼


❽

❾

Recording with Special Effects
(Digital Effects)

There are 13 different modes available for adding special digital picture effects.

Digital Effects 1 [EFFECT1]

❶ **Multi-Picture Mode [MULTI]**
The screen is divided into 9 small still fields. For details, (→ **44, 45**).

❷ **Picture-in-Picture Mode [P-IN-P]**
A small still picture is inserted and displayed inside the normal picture. For details, (→ **47**).

❸ **Wipe Mode [WIPE]**
It gradually replaces a picture of the last previously recorded scene with the picture of the new scene, like drawing a curtain. For details, (→ **48**).

❹ **Mix Mode [MIX]**
It gradually fades out the picture of the last previously recorded scene while fading in the picture of the new scene. For details, (→ **49**).

❺ **Strobe Mode [STROBE]**
It records the pictures with a stroboscope-like effect.

❻ **Gain-up Mode [GAINUP]**
It electronically brightens up the picture.
In this mode, adjust the focus manually.

❼ **Trailing Effect Mode [TRACER]**
The picture is recorded with a trailing effect.

❽ **Mosaic Mode [MOSAIC]**
The picture becomes mosaic-like.

❾ **Mirror Mode [MIRROR]**
The right half of the picture is a mirror image of the left half.

❿

⓫

⓬

⓭

Recording with Special Effects
(Digital Effects) (Continued)

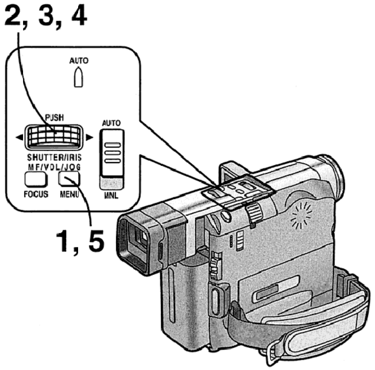
Digital Effects 2 [EFFECT2]

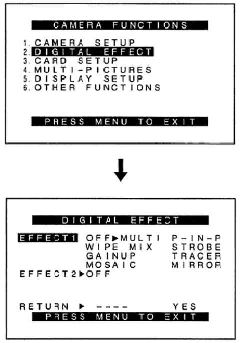
❿ **Negative Mode [NEGA]**
The recorded pictures have reversed colours similar to photographic negatives.

⓫ **Sepia Mode [SEPIA]**
Scenes are recorded with a brown tint similar to the colour of old photographs.

⓬ **Black & White Mode [B/W]**
The picture is recorded in black and white.

⓭ **Solarisation Mode [SOLARI]**
The picture is recorded with an effect similar to a painting.





```
CAMERA FUNCTIONS
1.CAMERA SETUP
2.DIGITAL EFFECT
3.CARD SETUP
4.MULTI-PICTURES
5.DISPLAY SETUP
6.OTHER FUNCTIONS

PRESS MENU TO EXIT
```

```
DIGITAL EFFECT
EFFECT1  OFF▶MULTI  P-IN-P
         WIPE MIX   STROBE
         GAINUP     TRACER
         MOSAIC     MIRROR
EFFECT2▶OFF

RETURN ▶ ----       YES
PRESS MENU TO EXIT
```

Recording with Special Effects
(Digital Effects) (Continued)

Selecting the Desired Digital Effect

1 **Press the [MENU] Button.**
The [CAMERA FUNCTIONS] Main-Menu appears.

2 **Turn the [PUSH] Dial to select [DIGITAL EFFECT] and then press the [PUSH] Dial.**
The [DIGITAL EFFECT] Sub-Menu appears.

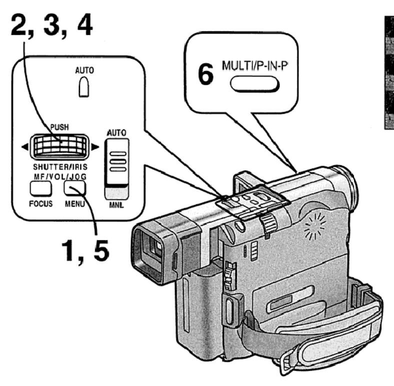
3 **Turn the [PUSH] Dial to select [EFFECT1] or [EFFECT2].**

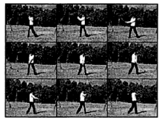
4 **Press the [PUSH] Dial to select the desired digital effect.**

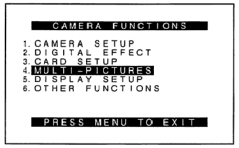
5 **Press the [MENU] Button to exit the menu.**
- The picture now has the selected digital effect.
  However, the Multi-Picture Function, Picture-in-Picture Function, Wipe Function and Mix Function require additional operations to make their effect visible.
  (→ 44, 45, 47, 48, 49)

- If you have set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [GAINUP], you need to adjust the focus manually; however, adjusting the shutter speed and selecting a white balance mode are not possible.
- If you have set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [B/W] or [SEPIA], changing the selected white balance mode is not possible.
- It is not possible to select the Sports Mode [🏃] or the Portrait Mode [👤] together with the Gain-up Mode [GAINUP] on the [DIGITAL EFFECT] Sub-Menu.
- When [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON], it is not possible to use any of the digital modes in [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu. **(→ 24)**

Cancelling the Digital Effect
Set [EFFECT1] or [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

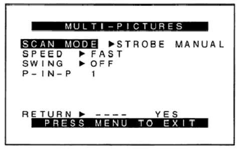






```
CAMERA FUNCTIONS
1.CAMERA SETUP
2.DIGITAL EFFECT
3.CARD SETUP
4.MULTI-PICTURES
5.DISPLAY SETUP
6.OTHER FUNCTIONS

PRESS MENU TO EXIT
```



```
MULTI-PICTURES
SCAN MODE  ▶STROBE  MANUAL
SPEED      ▶FAST
SWING      ▶OFF
P-IN-P      1

RETURN ▶ ----     YES
PRESS MENU TO EXIT
```

Recording with Special Effects
(Digital Effects) (Continued)

■ Strobe Multi-Picture Mode

This function captures and displays a sequence of 9 small still pictures.

After setting [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [MULTI]... (➔ 43)

1 **Press the [MENU] Button.**

2 **Turn the [PUSH] Dial to select [MULTI-PICTURES] and then press the [PUSH] Dial.**
The [MULTI-PICTURES] Sub-Menu appears.

3 **Turn the [PUSH] Dial to select [SCAN MODE] and then press the [PUSH] Dial to select [STROBE].**

4 **Turn the [PUSH] Dial to select [SPEED] and then press the [PUSH] Dial to select the desired strobe speed.**
At the [FAST] setting, the sequence of 9 still pictures is captured within approximately 1 second, at [NORMAL] with approximately 2 seconds, and at [SLOW] within approximately 3 seconds.

5 **Press the [MENU] Button to exit the menu.**

6 **Press the [MULTI] Button.**
A sequence of 9 still pictures appears.

- To record the displayed Multi Mode still pictures onto the tape, press the Recording Start/Stop Button or the [PHOTO SHOT] Button.

Swing Mode
If you set [SWING] on the [MULTI-PICTURES] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu to [ON], the intervals at which the 9 still pictures are taken are longer at the beginning and end than in the middle of the swing strobe period.

Making the Multi-Pictures Disappear
Press the [MULTI] Button.

Displaying the Multi-Pictures Again
Press the [MULTI] Button for more than 1 second.

Recording with Special Effects
(Digital Effects) (Continued)

■ Manual Multi-Picture Mode

With this function, you can capture up to 9 small still pictures and display them together on the same screen.

After setting [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [MULTI]... (➔ 43)

1 **Press the [MENU] Button.**

2 **Turn the [PUSH] Dial to select [MULTI-PICTURES] and then press the [PUSH] Dial.**
The [MULTI-PICTURES] Sub-Menu appears.

3 **Turn the [PUSH] Dial to select [SCAN MODE] and then press the [PUSH] Dial to select [MANUAL].**

4 **Press the [MENU] Button to exit the menu.**

5 **Press the [MULTI] Button once to activate the Multi-Picture Mode.**

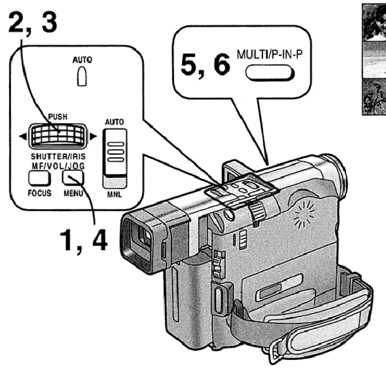
6 **Point the Movie Camera at the desired scene and press the [MULTI] Button again for each of the up to 9 still pictures that you want to capture.**

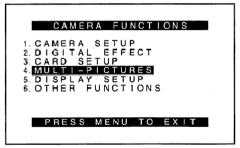
Making All Multi-Pictures Disappear
After displaying 9 pictures, it is possible to make them disappear in one go by pressing the [MULTI] Button.

Displaying the Multi-Pictures Again
Press the [MULTI] Button for more than 1 second.

Erasing the Multi-Pictures One by One
While the still pictures are displayed, press the [MULTI] Button for more than 1 second.

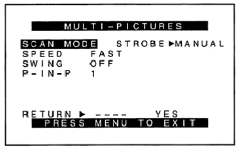
- This erases the last captured picture. Keeping the [MULTI] Button pressed erases the pictures continuously.
- After you have erased the still pictures one by one, it is not possible to display them again.





```
CAMERA FUNCTIONS
1.CAMERA SETUP
2.DIGITAL EFFECT
3.CARD SETUP
4.MULTI-PICTURES
5.DISPLAY SETUP
6.OTHER FUNCTIONS

PRESS MENU TO EXIT
```

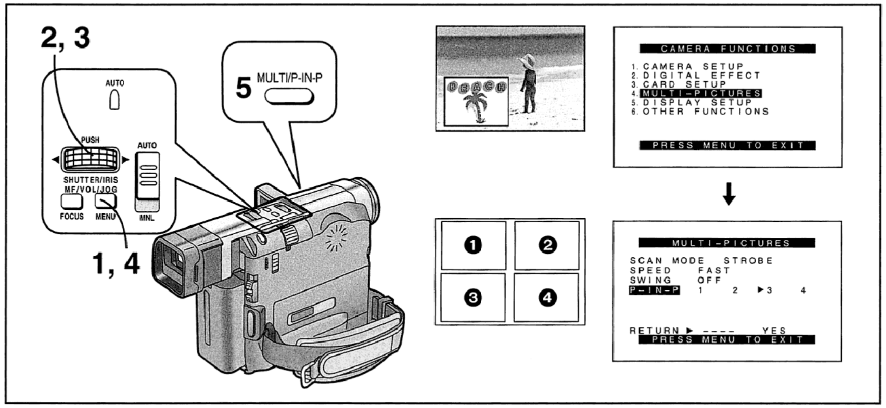


```
MULTI-PICTURES
SCAN MODE   STROBE ▶MANUAL
SPEED      FAST
SWING      OFF
P-IN-P     1

RETURN ▶ ----     YES
PRESS MENU TO EXIT
```

Notes for Using the Multi-Picture Mode

- It is not possible to use the Multi-Picture Mode when [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON].
- When using the Mirror Mode with the LCD Monitor facing forward, pressing the [MULTI] Button displays the still pictures starting at the top right corner of the screen.
- The quality of the pictures recorded in the Multi-Picture Mode is slightly inferior.
- To record the displayed Multi Mode still pictures onto the tape, press the Recording Start/Stop Button or the [PHOTO SHOT] Button.


2, 3
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
1, 4
5 MULTI/P-IN-P
CAMERA FUNCTIONS
1. CAMERA SETUP
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
MULTI-PICTURES
SCAN MODE STROBE
SPEED FAST
SWING OFF
P-IN-P 1 2 ▶3 4
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❶ ❷ ❸ ❹

Recording with Special Effects

(Digital Effects) (Continued)

■ Picture-in-Picture Mode

This function lets you display a small still picture inside the normal picture.

After setting [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [P-IN-P]... (➜ 43)

1 Press the [MENU] Button.

2 Turn the [PUSH] Dial to select [MULTI-PICTURES] and then press the [PUSH] Dial.
The [MULTI-PICTURES] Sub-Menu appears.

3 Turn the [PUSH] Dial to select [P-IN-P] and then press the [PUSH] Dial to select the desired position (❶, ❷, ❸ or ❹) where you want to insert the small picture.

4 Press the [MENU] Button to exit the menu.

5 Aim the Movie Camera at the scene that you want to capture and insert as a small picture and press the [P-IN-P] Button.
The small still picture appears inside the normal picture.

Making the Small Picture Disappear
Press the [P-IN-P] Button.

- It is not possible to use the Picture-in-Picture Mode when [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON].
- When you use the Camera Search Function or Recording Check Function, the small picture disappears. (However, it appears again after the Camera Search or Recording Check has finished.)
- It is possible to record the picture with the small picture inside in the Photoshot Mode. (However, it cannot be recorded in the Progressive Photoshot Mode.)
- Turning the Movie Camera off erases the small picture being displayed inside the normal picture.
- To record in the Picture-in-Picture Mode, press the Recording Start/Stop Button or the [PHOTO SHOT] Button.

Recording with Special Effects

(Digital Effects) (Continued)

■ Wipe Mode

It gradually replaces a still picture of the last recorded scene with the moving picture of the new scene, like drawing a curtain.

1 Press the [MENU] Button.

2 Turn the [PUSH] Dial to select [DIGITAL EFFECT] and then press the [PUSH] Dial.
The [DIGITAL EFFECT] Sub-Menu appears.

3 Turn the [PUSH] Dial to select [EFFECT1].

4 Press the [PUSH] Dial to select [WIPE].

5 Press the [MENU] Button to exit the menu.
The [WIPE] Indication appears.

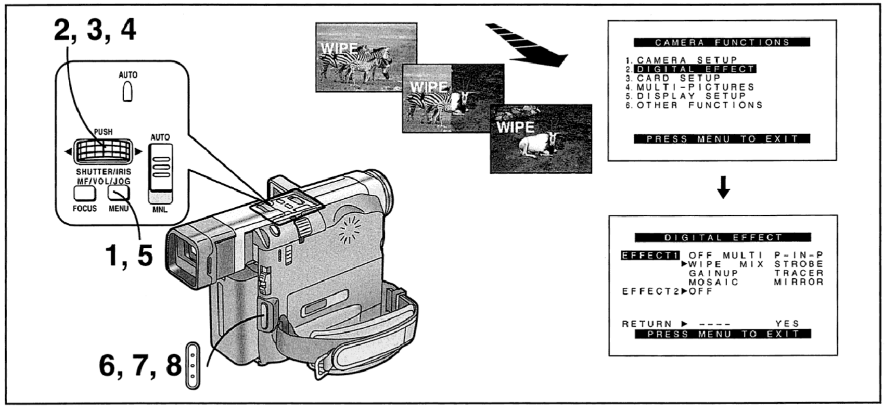
6 Press the Recording Start/Stop Button to start recording.
The normal recording starts.

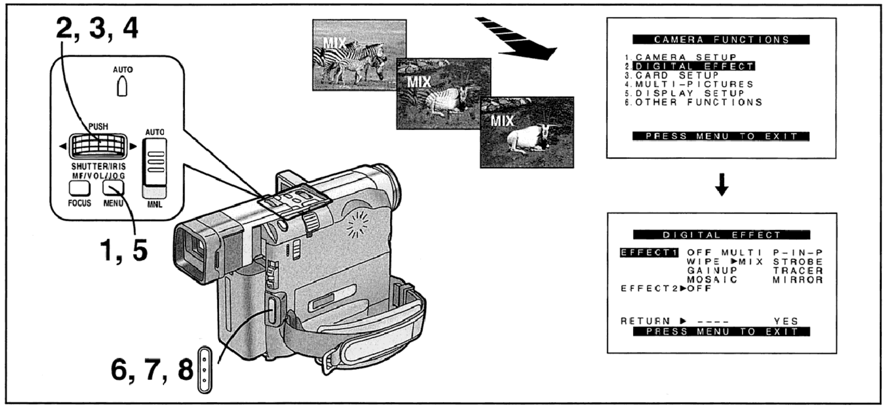
7 Press the Recording Start/Stop Button to pause recording.
The last picture is stored in memory.
The [WIPE] Indication changes to [**WIPE**].

8 Press the Recording Start/Stop Button to start recording again.
The last picture of the previous scene is gradually replaced by the new scene.

If you perform any of the following operations after performing Step 7, the picture stored in memory is erased and the Wipe Function cannot be used:
- Selecting any other mode on the [DIGITAL EFFECT] Sub-Menu.
- Using the Camera Search Function.

- Instead of performing the Wipe from the last recorded picture, you can store a still picture in memory by pressing the [PHOTO SHOT] Button after Step 5 above and then perform Step 8.


2, 3, 4
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
1, 5
6, 7, 8
WIPE
WIPE
WIPE
CAMERA FUNCTIONS
1. CAMERA SETUP
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
DIGITAL EFFECT
EFFECT1 OFF MULTI P-IN-P
▶WIPE MIX STROBE
GAINUP TRACER
MOSAIC MIRROR
EFFECT2▶OFF
RETURN ▶ ---- YES
PRESS MENU TO EXIT


2, 3, 4
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
1, 5
6, 7, 8
MIX
MIX
MIX
CAMERA FUNCTIONS
1. CAMERA SETUP
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
DIGITAL EFFECT
EFFECT1 OFF MULTI P-IN-P
WIPE ▶MIX STROBE
GAINUP TRACER
MOSAIC MIRROR
EFFECT2▶OFF
RETURN ▶ ---- YES
PRESS MENU TO EXIT

Recording with Special Effects

(Digital Effects) (Continued)

■ Mix Mode

It gradually fades out a still picture of the last recorded scene while fading in the moving picture of the new scene.

1 Press the [MENU] Button.

2 Turn the [PUSH] Dial to select [DIGITAL EFFECT] and then press the [PUSH] Dial.
The [DIGITAL EFFECT] Sub-Menu appears.

3 Turn the [PUSH] Dial to select [EFFECT1].

4 Press the [PUSH] Dial to select [MIX].

5 Press the [MENU] Button to exit the menu.
The [MIX] Indication appears.

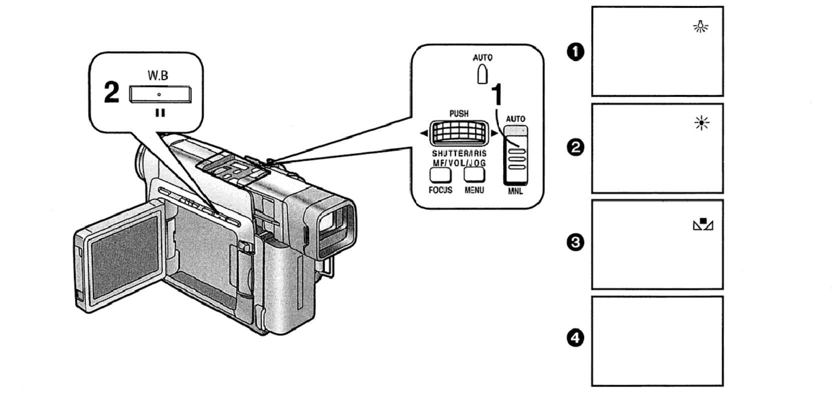
6 Press the Recordng Start/Stop Button to start recording.
The normal recording starts.

7 Press the Recording Start/Stop Button to pause recording.
The last picture is stored in memory.
The [MIX] Indication changes to [**MIX**].

8 Press the Recording Start/Stop Button to start recording again.
The last picture gradually fades out while the new scene fades in.

If you perform any of the following operations after performing Step 7, the picture stored in memory is erased and the Mix Function cannot be used:
- Selecting any other mode on the [DIGITAL EFFECT] Sub-Menu.
- Using the Camera Search Function.

- Instead of performing the Mix from the last recorded picture, you can store a still picture in memory by pressing the [PHOTO SHOT] Button after Step 5 above and then perform Step 8.



Recording with Natural Colours
(White Balance)

This Movie Camera automatically adjusts the white balance to ensure that the pictures are recorded with natural colours. For certain types of subjects and lighting conditions, however, this Auto White Balance Adjustment Mode may not be able to ensure natural colours (**➜ 113, 114**). In these cases, you can select either one of the 3 preset modes explained below (indoor, outdoor, or the last manually adjusted white balance setting), or you can manually adjust the white balance (**➜ 51**).

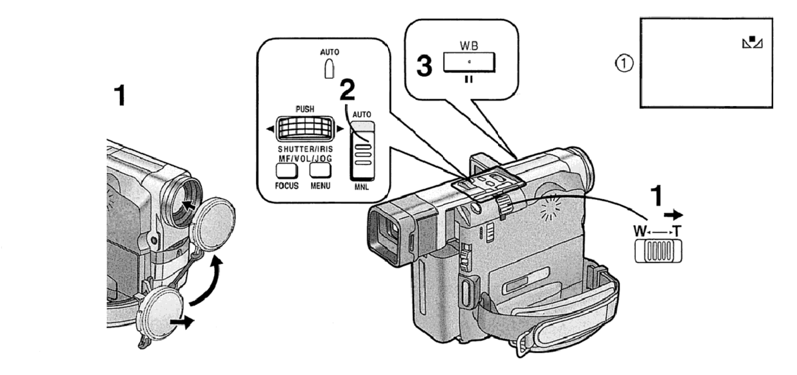
1 Set the Mode Selector Switch to [MNL].
The [MNL] Indication appears.

2 Press the White Balance [W.B] Button.
Repeatedly press the [W.B] Button to select the desired White Balance Mode.

The modes change in the following order:
❶ Indoor Mode
(recording under incandescent lamp) (☼)
❷ Outdoor Mode (☀)
❸ Last manually adjusted White Balance setting (◪)
(**➜ 51**)
❹ Automatic White Balance Adjustment (no indication)

- Be sure to remove the Lens Cap before setting the [OFF/ON/MODE] Switch to [ON]. If the Lens Cap is still attached to the Lens when the [CAMERA] Lamp lights, the automatic white balance adjustment may not be precise.
- If you have set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu to [GAINUP], or if you have set [EFFECT2] to [SEPIA] or [B/W], it is not possible to change the white balance.
- To change the white balance mode, the Movie Camera must be set within the optical zoom range (1×–15×). If you try to adjust it in the digital zoom range, the [◪] Indication flashes.

Returning to the Auto White Balance Adjustment Mode
Press the [W.B] Button repeatedly until none of the White Balance Mode Indications ([☼], [☀], [◪]) are displayed any more. Or, set the Mode Selector Switch to [AUTO].



Adjusting the White Balance Manually

Use the Manual White Balance Adjustment Mode for all types of lighting outside the range ❶ (**➜ 114**), as the Auto White Balance Adjustment Mode can only ensure natural colours for the types of lighting within that range. For optimum results under almost any type of lighting, we recommend that you adjust the white balance manually for each new scene.

1 Attach the Lens Cap and zoom in until the entire screen becomes white.

2 Set the Mode Selector Switch to [MNL].
The [MNL] Indication appears.

3 Keep the [W.B] Button pressed until the [◪] Indication ① stops flashing and remains lit.

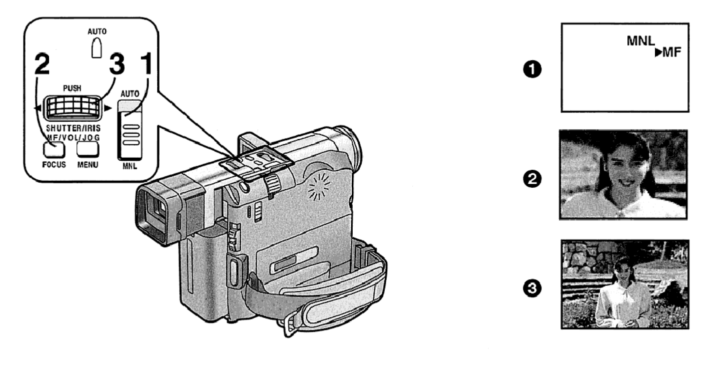
In the Following Cases, the [◪] Indication Flashes:
When you recall the last manually adjusted white balance setting
- The flashing indication tells you that the white balance setting you last adjusted is still maintained. This setting is kept until you adjust the white balance again.

When you are trying to adjust the white balance in a dark place
- Under weak illumination, precise manual white balance adjustment may not be possible. In this case, set the Mode Selector Switch to [AUTO] to record with automatic white balance adjustment.

During manual adjustment of the white balance
- The [◪] Indication flashes while the white balance is being adjusted. When the white balance adjustment is finished, the [◪] Indication stops flashing and remains lit.

- It is not possible to manually adjust the white balance or select any of the preset white balance modes when you have zoomed to 15× or higher (digital zoom range), when [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu is set to [GAINUP] and when [EFFECT2] is set to [SEPIA] or [B/W].
- We recommend that you adjust the white balance anew whenever there is a change in the recording situation.

Returning to the Automatic White Balance Adjustment Mode
Press the [W.B] Button repeatedly until none of the White Balance Mode Indications ([☼], [☀], [◪]) are displayed any more. Or, set the Mode Selector Switch to [AUTO].



Focusing on the Subject Manually
(Manual Focus)

This makes it possible to adjust the focus manually for subjects and recording situations for which automatic focusing is not precise.

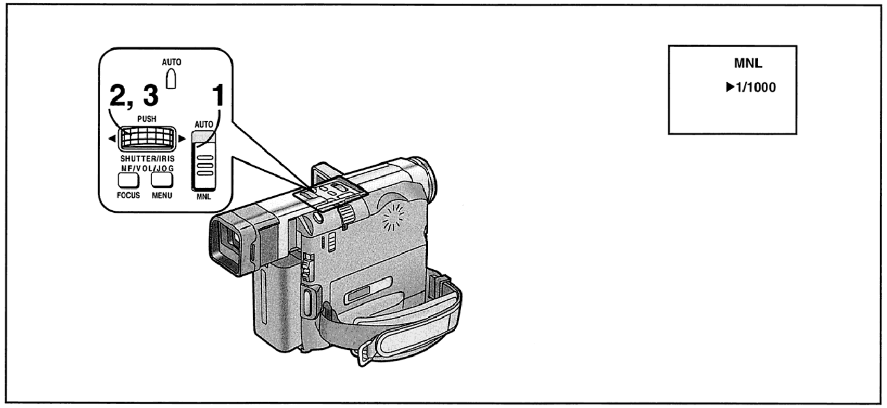
1 Set the Mode Selector to [MNL].
The [MNL] Indication appers.

2 Press the [FOCUS] Button.
The [▶MF] Indication ❶ appears.
MF: Manual Focus Mode

3 Turn the [PUSH] Dial until the subject is sharp.

Returning to the Automatic Focusing Mode
Press the [FOCUS] Button to make the [▶MF] Indication disappear. Or, set the Mode Selector Switch to [AUTO].

Hint for Manual Focus Adjustment
- If you adjust the focus in the wide-angle setting, the subject may go out of focus when you enlarge it. Therefore, enlarge the subject ❷ before you adjust the focus, so that the picture remains focused when you zoom out ❸.
- If you want to adjust the focus manually after having adjusted the shutter speed (**➜ 53**) or the iris (**➜ 54**), be sure to press the [FOCUS] Button to make the [▶MF] Indication appear, even if the [MF] Indication is displayed.



Adjusting the Shutter Speed Manually

To achieve special creative effects or to cope with special lighting situations or fast-action scenes, you can adjust the shutter speed manually.

1 **Set the Mode Selector Switch to [MNL].**
The [MNL] Indication appears.

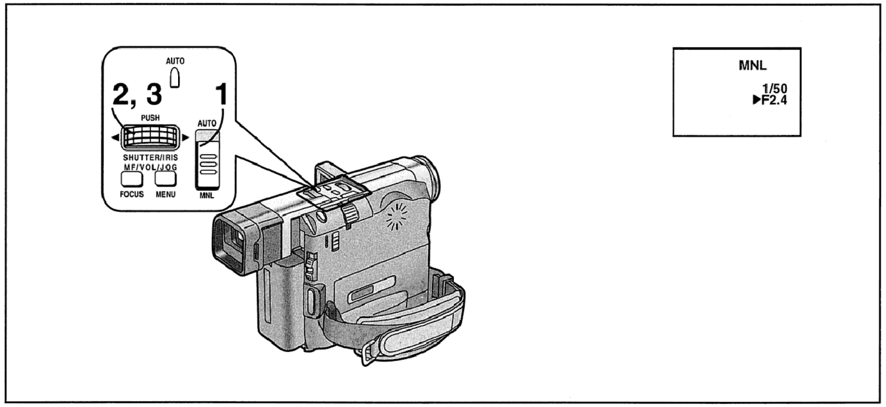
2 **Press the [PUSH] Dial.**
The Shutter Speed Indication appears.
You can change between the Shutter Speed Indication and the Iris (F Number) (**➜ 54**) Indication by repeatedly pressing the [PUSH] Dial.

3 **Turn the [PUSH] Dial to adjust the shutter speed.**

Range of Shutter Speed Adjustment
1/50–1/8000 s
The standard shutter speed is 1/50 s.
The nearer to [1/8000] a setting you select, the faster the shutter speed becomes.

- When [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON], the range of selectable shutter speeds is limited from 1/50 s to 1/500 s.
- The playback picture of subjects lit by strong lights or with much light reflection may contain vertical streaks of light.
- During normal playback, the scene-to-scene transitions may not be smooth.
- Avoid recording under fluorescent lamps, mercury lamps or natrium lamps, as they can cause unstable colours and brightness of the playback picture.
- When [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [AUTO], and the shutter speed is set to 1/750 s or faster, the Progressive Photoshot Mode cannot be used.
- When using the Gain-up Mode (**➜ 41**) or any of the Programme AE Modes (**➜ 39**), it is not possible to adjust the shutter speed. If the shutter speed was manually adjusted, this setting is cancelled.
- Adjust the shutter speed according to the recording situation.

Returning to the Normal Shutter Speed
Set the Mode Selector Switch to [AUTO].



Adjusting the Iris (F Number) Manually

To achieve special creative effects or to cope with special lighting situations, you can adjust the iris (F number) manually.

1 **Slide the Mode Selector Switch to [MNL].**
The [MNL] Indication appears.

2 **Press the [PUSH] Dial twice.**
The [▶F] Indication appears.
You can change between the Iris (F Number) Indication and the Shutter Speed Indication by repeatedly pressing the [PUSH] Dial.

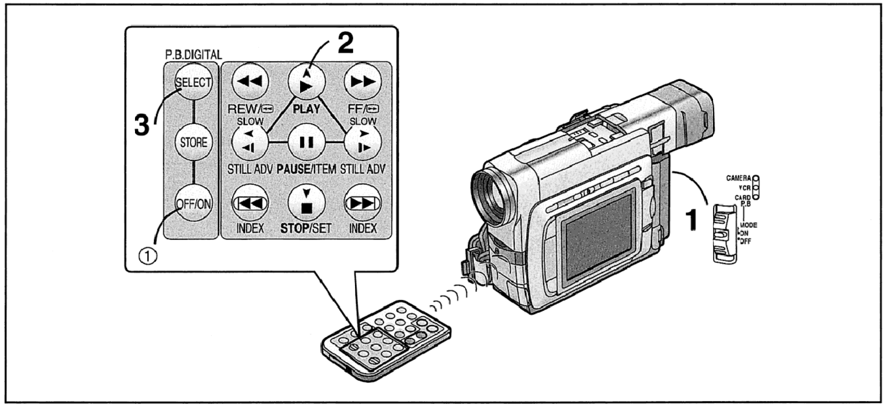
3 **Turn the [PUSH] Dial to adjust the iris.**

Range of Iris Adjustment
CLOSE (Closed)→F16...F2.0→OP+0 dB (Opened)...OP+18 dB
The nearer to [CLOSE] a value you select, the darker the picture becomes.
The nearer to [OP+18 dB] a value you select, the brighter the picture becomes.

The figures with +dB show the Gain-up value. If you increase the value too much, the picture quality deteriorates.

Returning to the Normal Iris Value (F Number)
Press the [PUSH] Dial one time to make the [▶F] Indication disappear. Or set the Mode Selector Switch to [AUTO].

- Increasing the Gain-up value also increases the graininess of the picture.
- Depending on the zoom magnification, some iris values may not be displayed.
- Manually adjusting the shutter speed after performing manual iris adjustment changes the iris back to automatic adjustment. Therefore, if you want to adjust both the shutter speed and iris manually, be sure to adjust the shutter speed first. (**➜ 53**)
- Manual iris adjustment is not possible when [PROG.AE] on the [CAMERA SETUP] Sub-Menu is set to any setting other than [OFF]. (**➜ 39**)



Playing Back with Special Effects

(Playback Digital Effects)

There are 11 different modes available for adding special digital picture effects to your recordings during playback. They are identical to the Digital Effects 1 and 2 (**➜ 41, 42**) that can be used during recording.

❶ MULTI ❷ WIPE ❸ MIX
❹ STROBE ❺ NEGA ❻ SEPIA
❼ B/W ❽ TRACER ❾ SOLARI
❿ MOSAIC ⓫ MIRROR

1 **Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.**

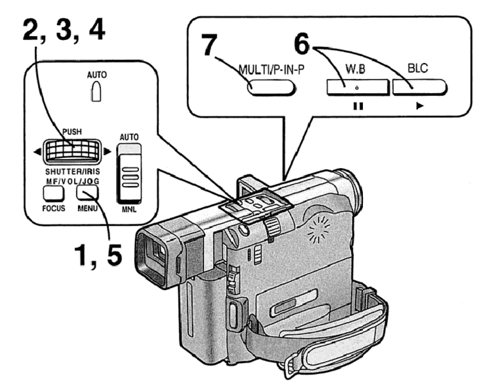
2 **Press the Play Button [▶].**

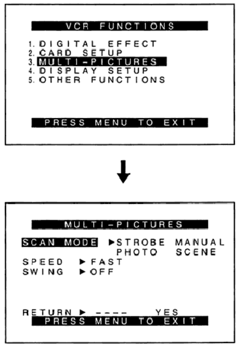
3 **Press the [SELECT] Button on the Remote Controller to select the desired digital effect.**
Repeatedly pressing the [SELECT] Button changes the selelcted digital effect in the order ❶ to ⓫.
Selecting a digital effect is also possible by setting [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu of [VCR FUNCTIONS] Main-Menu to the desired effect.

Suspending the Playback Digital Effect Temporarily
You can suspend and re-activate the digital effect by repeatedly pressing the [OFF/ON] Button ①. Suspending a digital effect is also possible by setting [EFFECT] on the [DIGITAL EFFECT] Sub-Menu to [OFF], and later to [ON] to re-activate it. When the digital effect is temporarily suspended, the indication of the selected effect flashes.

Cancelling the Digital Effect
Press the [SELECT] Button on the Remote Controller to make the displayed digital effect indication disappear. Or, set [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

- The signal of the picture with a digital effect added during playback cannot be output from the DV Terminal (**➜ 8**) or the Digital Still Picture Terminal. (**➜ 87**)
- In the VCR Mode, the Wipe Function and the Mix Function can only be operated with the Remote Controller.
- It is not possible to use the Wipe or Mix Function during playback of an unrecorded part of the tape.
- It is not possible to use the Mirror Mode of the Digital Effects and the Playback Zoom Function at the same time. (**➜ 62**)




```
VCR FUNCTIONS
1. DIGITAL EFFECT
2. CARD SETUP
3. MULTI-PICTURES
4. DISPLAY SETUP
5. OTHER FUNCTIONS

PRESS MENU TO EXIT
```

```
MULTI-PICTURES
SCAN MODE  ▶STROBE  MANUAL
            PHOTO   SCENE
SPEED    ▶FAST
SWING    ▶OFF

RETURN ▶ ----     YES
PRESS MENU TO EXIT
```

Playing Back with Special Effects

(Playback Digital Effects) (Continued)

■ Strobe Multi-Picture Mode

This function captures and displays a sequence of 9 small still pictures from the playback picture. This is very convenient for motion analysis of sports action, animal studies, etc.

After setting [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu to [MULTI]... (➔ 55)

1. **Press the [MENU] Button.**
2. **Turn the [PUSH] Dial to select [MULTI-PICTURES] and then press the [PUSH] Dial.**
   The [MULTI-PICTURES] Sub-Menu appears.
3. **Turn the [PUSH] Dial to select [SCAN MODE] and then press the [PUSH] Dial to select [STROBE].**
4. **Turn the [PUSH] Dial to select [SPEED] and then press the [PUSH] Dial to select the desired strobe speed.**
   At the [FAST] setting, the sequence of 9 still pictures is captured within approximately 1 second, at [NORMAL] within approximately 2 seconds, and at [SLOW] within approximately 3 seconds.
5. **Press the [MENU] Button to exit the menu.**
6. **Start playback, and when you reach the scene that you want to capture and display in the Strobe Multi-Picture Mode, pause the picture.**
7. **Press the [MULTI] Button.**
   A sequence of 9 still pictures appears and the tape stops.

Swing Mode

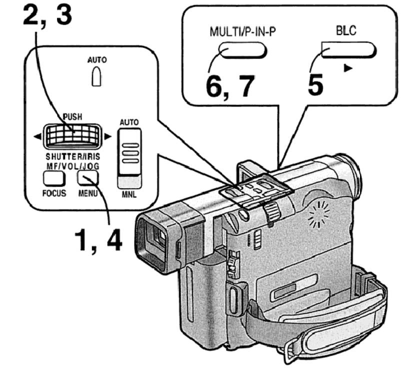
If you set [SWING] on the [MULTI-PICTURES] Sub-Menu to [ON], the intervals at which the still pictures are captured are longer at the beginning and end than in the middle of the swing strobe period.

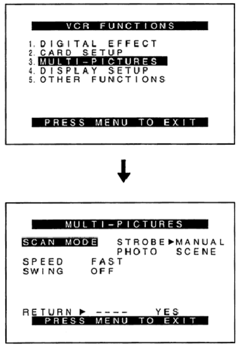
Making the Multi-Pictures Disappear

Press the [MULTI] Button.

Displaying the Multi-Pictures Again

Press the [MULTI] Button for more than 1 second.




```
VCR FUNCTIONS
1. DIGITAL EFFECT
2. CARD SETUP
3. MULTI-PICTURES
4. DISPLAY SETUP
5. OTHER FUNCTIONS

PRESS MENU TO EXIT
```

```
MULTI-PICTURES
SCAN MODE   STROBE▶MANUAL
            PHOTO   SCENE
SPEED    FAST
SWING    OFF

RETURN ▶ ----     YES
PRESS MENU TO EXIT
```

Playing Back with Special Effects

(Playback Digital Effects) (Continued)

■ Manual Multi-Picture Mode

With this function, you can capture up to 9 pictures from different scenes and display them together as small still pictures on the same screen. This lets you put together an assortment of different scenes in a single picture.

After setting [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu to [MULTI]... (➔ 55)

1. **Press the [MENU] Button.**
2. **Turn the [PUSH] Dial to select [MULTI-PICTURES] and then press the [PUSH] Dial.**
   The [MULTI-PICTURES] Sub-Menu appears.
3. **Turn the [PUSH] Dial to select [SCAN MODE] and then press the [PUSH] Dial to select [MANUAL].**
4. **Press the [MENU] Button to exit the menu.**
5. **Press the Play Button [▶].**
6. **Press the [MULTI] Button once to activate the Multi-Picture Mode.**
7. **Press the [MULTI] Button at the scene that you want to capture and display in the Manual Multi-Picture Mode.**
   When 9 still pictures are displayed, the tape stops.

Making All Multi-Pictures Disappear

After displaying 9 pictures, it is possible to make them disappear in one go by pressing the [MULTI] Button.

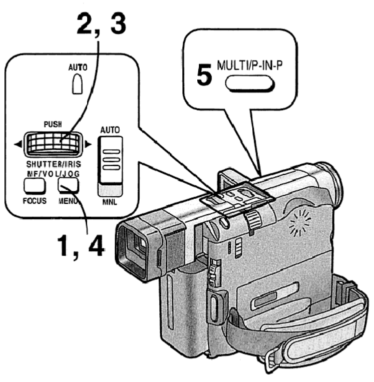
Displaying the Multi-Pictures Again

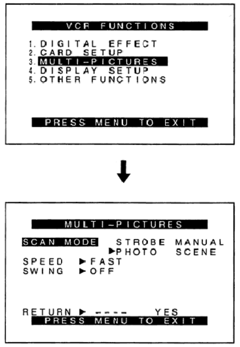
Press the [MULTI] Button for more than 1 second.

Erasing the Multi-Pictures One by One

While the still pictures are displayed, press the [MULTI] Button for more than 1 second.

- This erases the last captured picture. Keeping the [MULTI] Button pressed erases the pictures continuously.
- After you have erased the still pictures one by one, it is not possible to display them again.




```
VCR FUNCTIONS
1. DIGITAL EFFECT
2. CARD SETUP
3. MULTI-PICTURES
4. DISPLAY SETUP
5. OTHER FUNCTIONS

PRESS MENU TO EXIT
```

```
MULTI-PICTURES
SCAN MODE   STROBE  MANUAL
           ▶PHOTO   SCENE
SPEED    ▶FAST
SWING    ▶OFF

RETURN ▶ ----     YES
PRESS MENU TO EXIT
```

Playing Back with Special Effects

(Playback Digital Effects) (Continued)

■ Index Multi-Picture Mode

With this function, you can automatically capture up to 9 small still pictures of scenes or Photoshot pictures marked with index signal and display them in a single picture.

After setting [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu to [MULTI]... (➔ 55)

1. **Press the [MENU] Button.**
2. **Turn the [PUSH] Dial to select [MULTI-PICTURES] and then press the [PUSH] Dial.**
   The [MULTI-PICTURES] Sub-Menu appears.
3. **Turn the [PUSH] Dial to select [SCAN MODE] and then press the [PUSH] Dial to select [PHOTO] or [SCENE].**
4. **Press the [MENU] Button to exit the menu.**
5. **Press the [MULTI] Button.**
   9 pictures marked with index signals are captured in forward direction from the tape position at which the [MULTI] Button was pressed, and the tape then stops. (If there are less than 9 pictures marked with index signals, the tape stops at its end.)

Making the Multi-Pictures Disappear

Press the [MULTI] Button.

Displaying the Multi-Pictures Again

Press the [MULTI] Button for more than 1 second.

There Are Two Different Types of Index Signals:

In Step 3 above, select [PHOTO] or [SCENE] as follows:

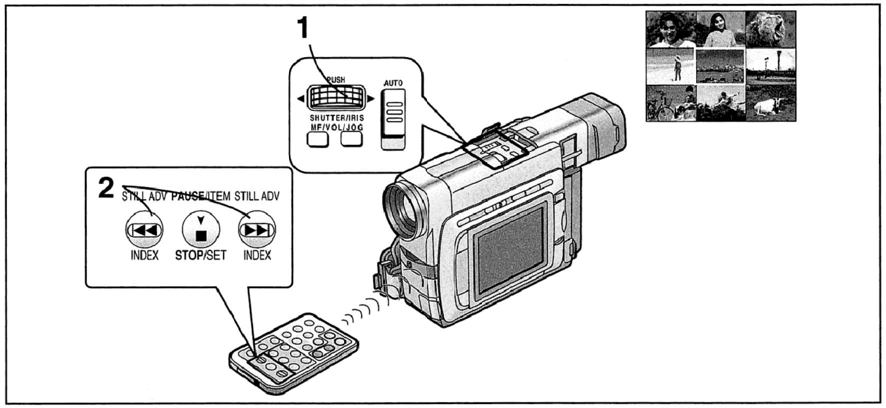
[PHOTO]: To search for still pictures marked with photoshot index signal and capture and display them.

[SCENE]: To search for scenes marked with scene index signal and capture and display them as still pictures.

- The index signals are recorded automatically during recording. (➔ 35)

Notes for Using the Multi-Picture Mode

- The playback multi-pictures cannot be output from the DV Terminal (➔ 8) or the Digital Still Pictures Terminal (➔ 87).
- The quality of the pictures displayed in the Multi-Picture Mode is slightly inferior.
- If a picture is being input via the DV Terminal, it is not possible to use the Multi-Picture Mode. Disconnect the source unit from the DV Terminal.
- If you switch the Movie Camera from the Index Multi-Picture Mode over to the Camera Mode, the setting of [SCAN MODE] on the [MULTI-PICTURES] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu is automatically set to [STROBE].


1
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
2
STILL ADV PAUSE/ITEM STILL ADV
INDEX STOP/SET INDEX

Playing Back with Special Effects
(Playback Digital Effects) (Continued)

■ Multi-Picture Search

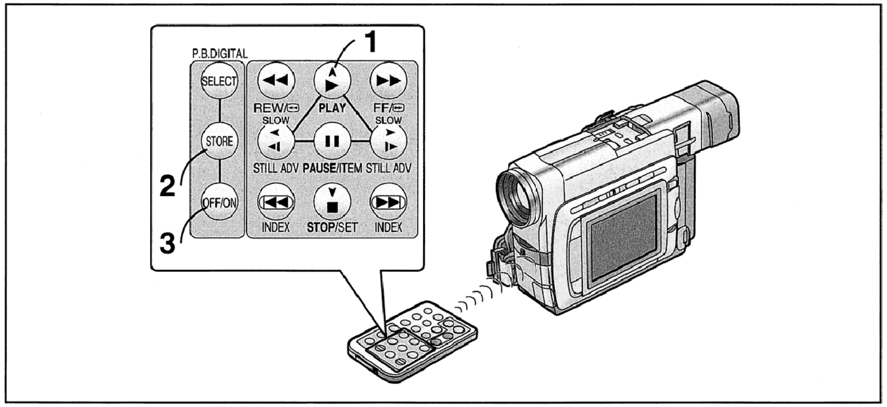
This function lets you search for the tape position of a desired still picture displayed in the Multi-Picture Mode.

1 **After displaying the still pictures in the Multi-Picture Mode, turn the [PUSH] Dial to select a picture whose tape position you want to locate.**
The selected picture is marked with a flashing red frame.

2 **Press the Index Button [|◀◀] or [▶▶|] on the Remote Controller.**
The tape stops at the beginning of the selected scene and the Movie Camera is in the Still Playback Mode.

Displaying the Still Pictures in the Multi-Picture Mode Again
Press the [MULTI] Button for more than 1 second.

- In case of the pictures displayed in the Manual Multi-Picture Mode (**→ 57**), use the Multi-Picture Search Function after displaying all 9 pictures.
- In case of the pictures displayed in the Index Multi-Picture Mode (**→ 58**), the Multi-Picture Search Function can be used even if less than 9 pictures are displayed.
- If you use a video printer equipped with a 5-pin editing socket, you can print the picture that you selected in Step 1.
- The tape positions of the pictures located with the Multi-Picture Search Function are subject to some imprecision.


P.B.DIGITAL
SELECT
STORE
OFF/ON
REW/⊟ SLOW
PLAY
FF/⊟ SLOW
STILL ADV PAUSE/ITEM STILL ADV
INDEX STOP/SET INDEX
1
2
3

Playing Back with Special Effects
(Playback Digital Effects) (Continued)

■ Wipe Function and Mix Function

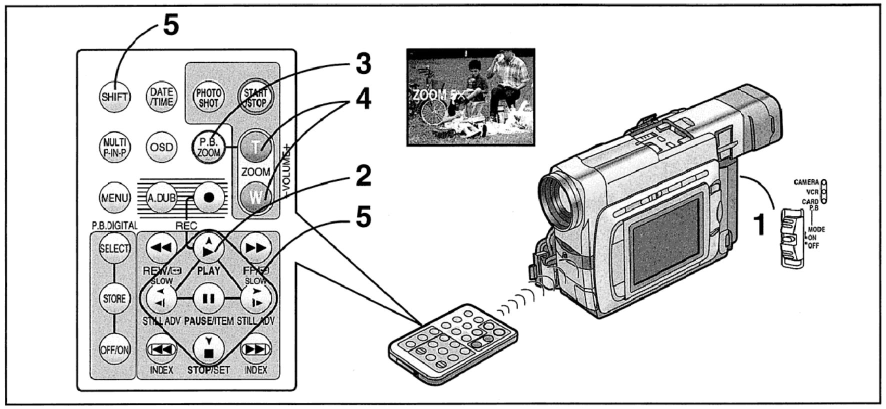
After setting [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu to [WIPE] or [MIX]... (→ 55)

1 **Press the [▶] Button to start playback.**

2 **Press the [STORE] Button at the moment that you want to store as still image in memory.**
The [WIPE] or [MIX] Indication appears and the picture is stored in memory.

3 **Press the [OFF/ON] Button at the scene at which you want to use a Wipe or Mix effect.**
The scenes change with a Wipe or Mix effect.

- Operating the Wipe Function and the Mix Function during playback is only possible with the Remote Controller.
- It is not possible to add a Wipe or Mix effect during playback of an unrecorded part on the tape.
- If you press the [OFF/ON] Button while the Wipe or Mix is being performed, the effect is paused at that point. If you press the [OFF/ON] Button again, the effect resumes.


5
SHIFT
DATE/TIME
PHOTO SHOT
START/STOP
MULTI F-IN-P
OSD
P.B. ZOOM
T
ZOOM
W
-VOLUME+
MENU
A.DUB
REC
P.B.DIGITAL
SELECT
STORE
OFF/ON
REW/⊟ SLOW
PLAY
FF/⊟ SLOW
STILL ADV PAUSE/ITEM STILL ADV
INDEX STOP/SET INDEX
3
4
2
5
ZOOM 5×
1
CAMERA
VCR
CARD
P.B
MODE
ON
OFF

Enlarging the Playback Picture
(Playback Zoom)

With this function, you can enlarge a part of the picture by up to 10 times during playback.

1 **Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.**

2 **Press the Play Button [▶].**

3 **Press the Playback Zoom Button [P.B.ZOOM] on the Remote Controller.**
The center part of the picture is enlarged about 2 times.

Changing the Zoom Magnification

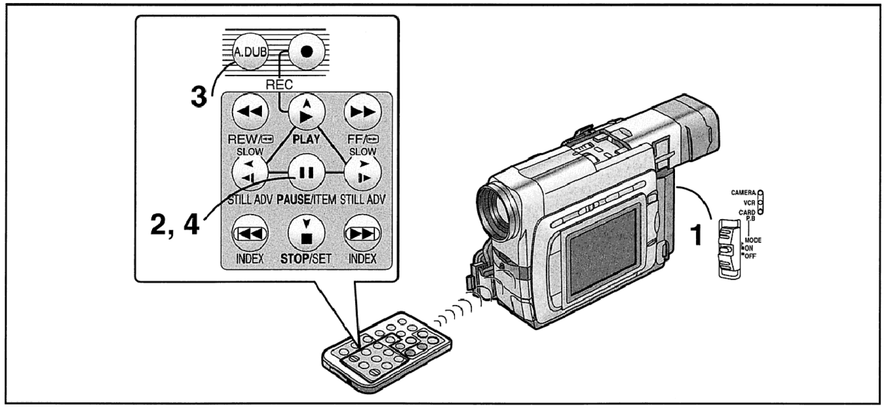
4 **Press the [W] or [T] Zoom Button on the Remote Controller to change the magnification.**
You can increase the magnification up to 10×.

Changing the Part of the Picture to be Enlarged

5 **While pressing the [SHIFT] Button on the Remote Controller, press the Arrow Button (▲, ◀, ▶, ▼) for the direction in which you want to shift the enlarged part of the picture.**
When you stop playback, the position of the part of the picture to be enlarged is automatically reset to the centre.

Cancelling the Playback Zoom Function
Press the [P.B.ZOOM] Button on the Remote Controller.

- In the Playback Zoom Mode, it is not possible to adjust the sound volume.
- Turning the Movie Camera off or switching it from the VCR Mode over to the Camera Mode automatically cancels the Playback Zoom Mode.
- Even while you are using the Playback Zoom Function, the picture output from the DV Terminal (**→ 8**) and the Digital Still Picture Terminal (**→ 87**) is not enlarged.
- The more the picture is enlarged, the more its picture quality deteriorates.
- If you press the [MULTI] Button in the Playback Zoom Mode, the zoom magnification becomes 1×.
- It is not possible to use the Mirror Mode of the Digital Effects and the Playback Zoom Function at the same time. (**→ 55**)



Adding New Sound on a Recorded Cassette (Audio Dubbing)

To perform audio dubbing, the Remote Controller is necessary.
You can add music or narration on a recorded cassette.

- If you perform audio dubbing onto a tape that was recorded with [AUDIO REC] on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu set to [16bit], the original sound is erased. (If you intend to perform audio dubbing but also want to keep the original sound, be sure to set [AUDIO REC] to [12bit] before making the original recording.)
- It is not possible to perform audio dubbing onto recordings made in the LP Mode. (**→ 14**)

1 Insert the recorded cassette and slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.
Make sure that the erasure prevention slider of the cassette is set to [REC].

2 At the point from which you want to insert the new sound, switch the Movie Camera over to the Still Playback Mode.
Using Cue Playback, Review Playback or Variable Speed Playback makes it easy to search for this point.

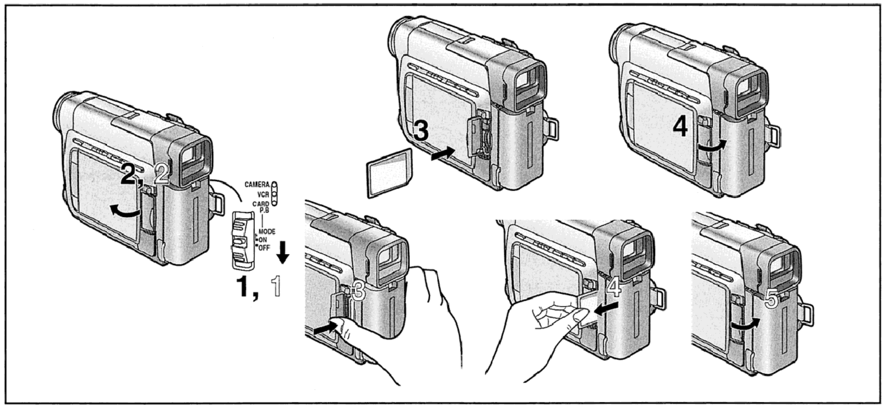
3 Press the [A.DUB] Button on the Remote Controller.

4 Press the Pause Button [❚❚] on the Remote Controller to start audio dubbing.

Stopping Audio Dubbing
Press the Pause Button [**❚❚**] on the Remote Controller.
The Movie Camera is again in the Still Playback Mode.

Playing Back the Sound Recorded with Audio Dubbing
Depending on the setting selected for [12bit AUDIO] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] Main-Menu, the sound added with audio dubbing and the original sound are played back as follows:
ST1: The original sound alone is played back.
ST2: The dubbed sound alone is played back.
MIX: The original sound and the sound added with audio dubbing are played back together.

- It is not possible to perform audio dubbing on an unrecorded part of the tape.
- If there was an unrecorded part on the tape when audio dubbing was performed, picture and sound distortion occur at that tape portion during playback.
- If you reset the Tape Counter to zero at the point where you want the audio dubbing to end and turn on the Memory Stop Function (**→ 116**), the audio dubbing automatically stops when the tape reaches that point.



Using the MultiMediaCard

You can use the supplied MultiMediaCard to record still pictures onto it, even without a cassette inserted. You can also take favourite scenes recorded on the cassette and copy them as still pictures onto the MultiMediaCard, or you can copy still pictures recorded on the MultiMediaCard onto the cassette.

Loading the MultiMediaCard
Be sure to turn the Movie Camera off before loading the MultiMediaCard.

1 Set the [OFF/ON/MODE] Switch to [OFF].

2 Slide the Card Slot Cover in the direction of the arrow to open it.

3 Hold the MultiMediaCard with its cut-off corner facing down and toward the Movie Camera and insert it straight until it stops.

4 Close the Card Slot Cover securely.

Taking Out the MultiMediaCard
Be sure to turn the Movie Camera off before taking out the MultiMediaCard.

1 Set the [OFF/ON/MODE] Switch to [OFF].

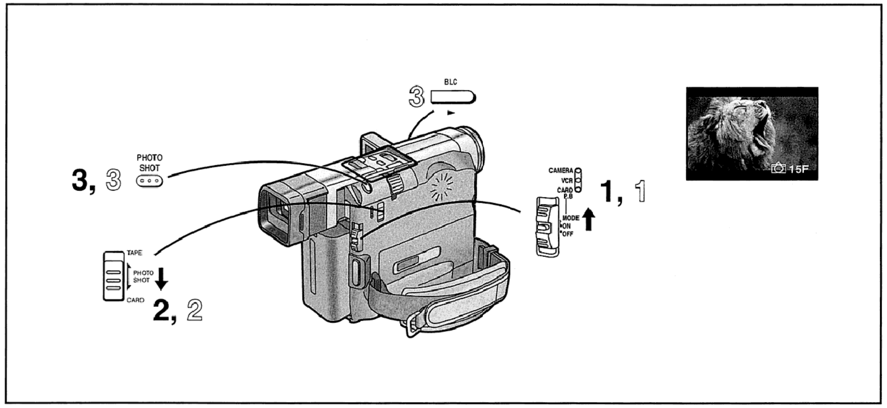
2 Slide the Card Slot Cover in the direction of the arrow to open it.

3 Push the MultiMediaCard on its centre.

4 Pull the MultiMediaCard straight out.

5 Close the Card Slot Cover securely.

- Do not turn the Movie Camera off while the MultiMediaCard is being read, such as during Card Photoshot recording, copying pictures onto the cassette, erasing pictures on the MultiMediaCard or using the Multi-Picture Function in the Card Playback Mode.
This could damage the MultiMediaCard or recorded contents, and even cause malfunction of the Movie Camera.
- Before closing the Card Slot Cover, be sure to confirm that the MultiMediaCard is inserted correctly.


3, ③
PHOTO SHOT
TAPE
PHOTO SHOT
CARD
2, ②
BLC
③
CAMERA
VCR
CARD P.B
MODE
ON
OFF
1, ①
15F

Recording Still Pictures on the MultiMediaCard (Card Photoshot)

You can record still picture onto the MultiMediaCard both through the Movie Camera's lens and from scenes that you have already recorded on the cassette.
- Sound is not recorded.
- The Shutter Effect (➜ 22) cannot be used.

Recording Still Pictures on the MultiMediaCard in the Camera Mode:

1. **Set the [OFF/ON/MODE] Switch to [ON].**
   The [CAMERA] Lamp lights.
2. **Slide the [TAPE/CARD] Selector to [CARD].**
3. **Press the [PHOTO SHOT] Button at the scene that you want to record.**

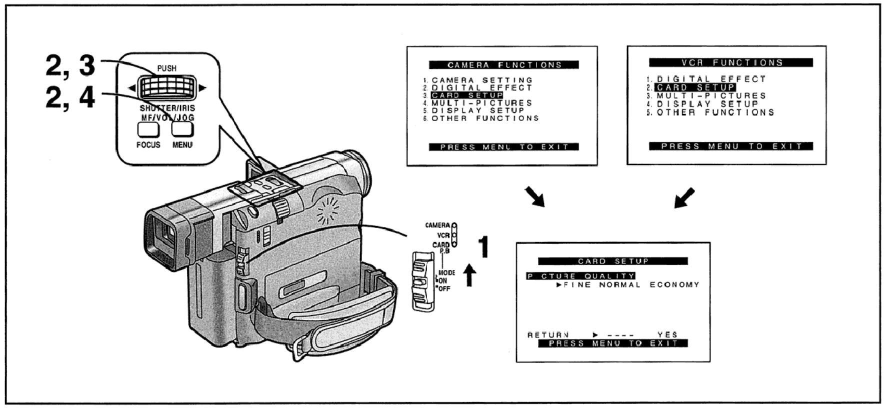
Recording Still Pictures on the MultiMediaCard in the VCR Mode:

① **Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.**
The [VCR] Lamp lights.

② **Slide the [TAPE/CARD] Selector to [CARD].**

③ **Start playback and press the [PHOTO SHOT] Button at the scene that you want to record.**
The picture stands still for approximately 4 seconds (when [PICTURE QUALITY] is set to [NORMAL]) while the picture is being recorded.

- Electromagnetic waves, static electricity, malfunction of the Movie Camera or of the MultiMediaCard itself could erase the data recorded on it. To prevent the loss of picture data, we recommend that you make a backup copy on a cassette (**➜ 72**) or on the computer (**➜ 73**).
- If you use the Card Photoshot Function during recording, the Movie Camera is automatically put in the Recording Pause Mode.


2, 3
2, 4
PUSH
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
CAMERA
VCR
CARD P.B
MODE
ON
OFF
1
CAMERA FUNCTIONS
1. CAMERA SETTING
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
VCR FUNCTIONS
1. DIGITAL EFFECT
2. CARD SETUP
3. MULTI-PICTURES
4. DISPLAY SETUP
5. OTHER FUNCTIONS
PRESS MENU TO EXIT
CARD SETUP
PICTURE QUALITY
▶FINE NORMAL ECONOMY
RETURN ▶ ---- YES
PRESS MENU TO EXIT

Quality of Card Photoshot Pictures

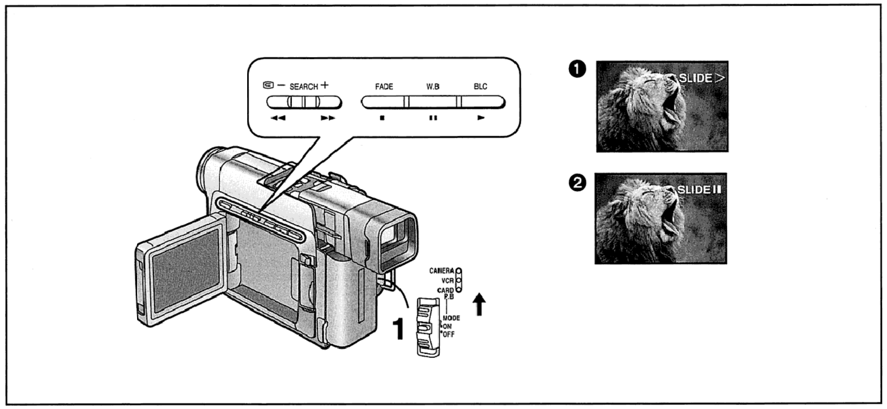
You can choose among 3 picture quality modes for the Card Photoshot Function.

1. **Set the [OFF/ON/MODE] Switch to [ON].**
2. **Select [CARD SETUP] on the [VCR FUNCTIONS] Main-Menu or [CAMERA FUNCTONS] Main-Menu. (➜ 94)**
3. **Push the [PUSH] Dial to set [PICTURE QUALITY] to the desired setting.**
4. **Press the [MENU] Button to exit the menu.**

Maximum recordable number of pictures on the supplied 4 MB MultiMediaCard

FINE:	Approx. 25 pictures
NORMAL:	Approx. 50 pictures
ECONOMY:	Approx. 100 pictures

- When recording in more than one mode (FINE, NORMAL, ECONOMY) on the same MultiMediaCard, the maximum recordable number differs from the numbers indicated above.
- The maximum recordable numbers are approximations. When recording intricate pictures with fine details, the number of recordable still pictures on the MultiMediaCard decreases due to their large data volume.
- To be able to record an even larger number of still pictures, we recommend that you use the 8 MB MultiMediaCard VW-MMC8E or the 16 MB MultiMediaCard VW-MMC16E (both optional).
- To record pictures in high quality, set [PICTURE QUALITY] on the [CARD SETUP] Sub-Menu to [FINE]; to record as many pictures as possible, set it to [ECONOMY].
- When you select [ECONOMY] for recording, the playback picture may contain mosaic-like noise patterns depending on the picture content.


– SEARCH +
◀◀
▶▶
FADE
W.B
BLC
■
❚❚
▶
CAMERA
VCR
CARD P.B
MODE
ON
OFF
1
❶
SLIDE ▷
❷
SLIDE ❚❚

Playing Back Pictures Recorded on the MultiMediaCard (Card Playback)

This function lets you play back the pictures recorded on the MultiMediaCard on the Movie Camera.

Playing Back Pictures

1. **Slide the [OFF/ON/MODE] Switch from the [ON] position so that the [CARD P.B] Lamp lights and the Movie Camera is in the Card Playback Mode.**
   The last recorded still picture on the MultiMediaCard is displayed.

To play back later recorded pictures:
Press the [SEARCH+] Button.

To play back earlier recorded pictures:
Press the [−SEARCH] Button.

To play back all recorded pictures in succession (Slide Playback):
Press the [▶] Button.
The [SLIDE ▷] Indication appears. ❶

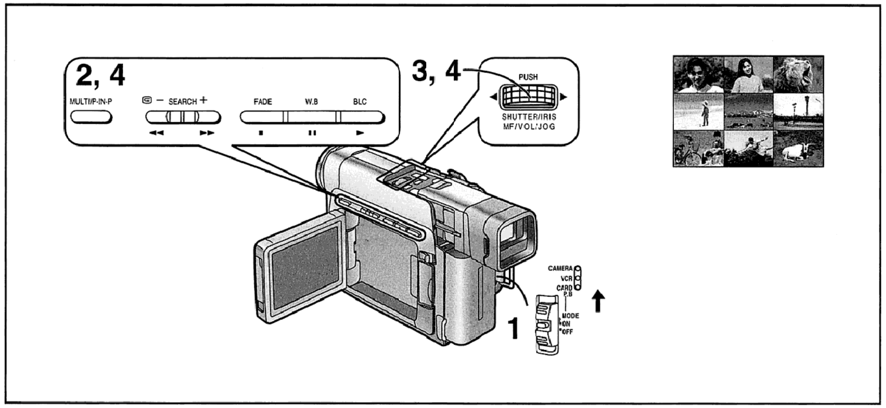
- All pictures are played back for approximately 6 seconds each, from the first to the last recorded picture, and playback then stops.

To pause the Slide Playback:
Press the [❚❚] Button.
The [SLIDE ❚❚] Indication appears. ❷

- To resume the Slide Playback, press the [❚❚] Button again or the [▶] Button. Playback resumes from the next picture and stops at the last recorded picture.

To stop the Slide Playback:
Press the [■] Button.

- To resume the Slide Playback, press the [▶] Button. Playback resumes from the next picture, and after all recorded pictures have been played back, it stops at the picture, at which you stopped the Slide Playback before.
- The [N], [F] or [E] Indication displayed in Card Playback pictures shows the volume of image data of a still picture recorded on the MultiMediaCard. (**➜ 123**)


2, 4
MULTI/P-IN-P
– SEARCH +
FADE
W.B
BLC
3, 4
PUSH
SHUTTER/IRIS
MF/VOL/JOG
CAMERA
VCR
CARD P.B
MODE
ON
OFF
1

Selecting and Playing Back Pictures Displayed in the Multi-Picture Mode

1 **Slide the [OFF/ON/MODE] Switch from the [ON] position so that the [CARD P.B] Lamp lights and the Movie Camera is in the Card Playback Mode.**
The last recorded still picture on the MultiMediaCard is displayed.

2 **Press the [MULTI] Button.**
The last recorded still pictures on the MultilMediaCard are displayed in the Multi-Picture Mode.

3 **Turn the [PUSH] Dial to select the desired picture.**
The selected picture is marked with a red frame.

4 **Press the [PUSH] Dial or the [MULTI] Button.**
The selected picture appears in full screen size.

- It is not possible to select the desired multi-picture with the Remote Controller. Turn the [PUSH] Dial on the Movie Camera.
- In the Multi-Picture Mode, 9 still pictures are displayed on the same screen. If more than 9 still pictures are recorded on the MultiMediaCard, turn the [PUSH] Dial to display the next 9 pictures. (Instead of the [PUSH] Dial, you can also use the [SEARCH+] Button or the [−SEARCH] Button.)
- When you play back a blank (unrecorded) MultiMediaCard, the screen becomes white and the [— —] Indication appears.
- If you attempt to play back a still picture recorded in a different format or a picture whose image data is defective, the [×] Indication and the [CARD ERROR] Indication could appear as warning.
- When the still pictures are displayed in the Multi-Picture Mode, the Slide Playback cannot be activated.

Erasing Pictures Recorded on the MultiMediaCard

You can use the Movie Camera to erase the still pictures recorded on the MultiMediaCard.
After erasing them, the pictures cannot be recovered any more.

After putting the Movie Camera in the Card Playback Mode... (→ 68)

Selecting and Erasing Pictures Ⓐ

1 **Press the [MENU] Button.**

2 **Select [ERASE PICTURE] on the [CARD FUNCTIONS] Main-Menu. (→ 94)**

3 **Turn the [PUSH] Dial to select [ERASE BY SELECTION] and then press it.**

4 **Turn the [PUSH] Dial to select the picture that you want to erase and then press it.**
The selected picture flashes.

5 **Press the [PHOTO SHOT] Button.**
The confirmation message appears.

6 **Turn the [PUSH] Dial to select [YES] and then press it.**
The selected picture is now erased from the MultiMediaCard.
If you select [NO], the picture selection is cancelled.

7 **Press the [MENU] Button.**

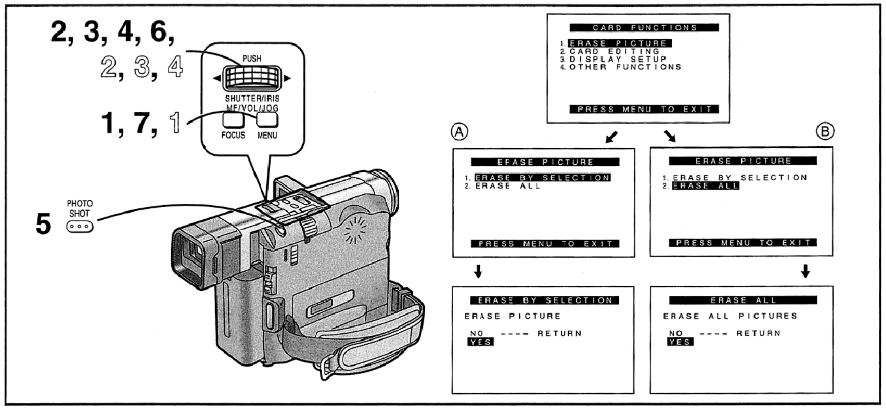
Erasing All Pictures Ⓑ

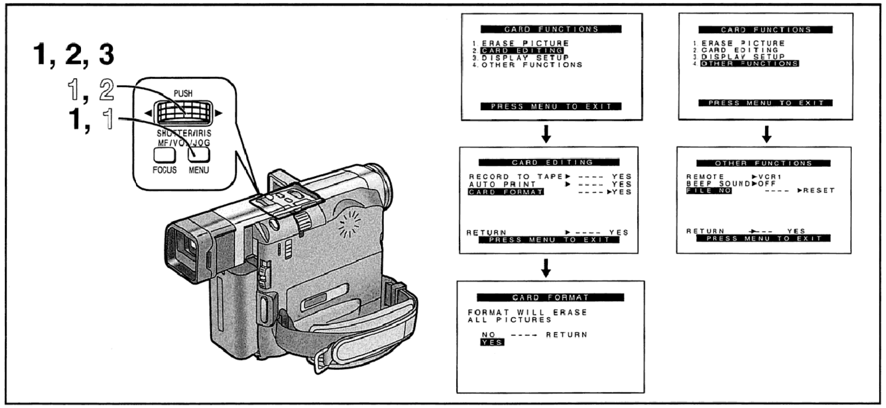
1 **Press the [MENU] Button.**

2 **Select [ERASE PICTURE] on the [CARD FUNCTIONS] Main-Menu. (→ 94)**

3 **Turn the [PUSH] Dial to select [ERASE ALL] and the press it.**
The confirmation message appears.

4 **Turn the [PUSH] Dial to select [YES].**
All pictures stored on the MultiMediaCard are now erased.


2, 3, 4, 6,
2, 3, 4
1, 7, 1
PUSH
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
PHOTO SHOT
5
CARD FUNCTIONS
1. ERASE PICTURE
2. CARD EDITING
3. DISPLAY SETUP
4. OTHER FUNCTIONS
PRESS MENU TO EXIT
Ⓐ
Ⓑ
ERASE PICTURE
1. ERASE BY SELECTION
2. ERASE ALL
PRESS MENU TO EXIT
ERASE PICTURE
1. ERASE BY SELECTION
2. ERASE ALL
PRESS MENU TO EXIT
ERASE BY SELECTION
ERASE PICTURE
NO ---- RETURN
YES
ERASE ALL
ERASE ALL PICTURES
NO ---- RETURN
YES


1, 2, 3
1, 2
1, 1
PUSH
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
CARD FUNCTIONS
1. ERASE PICTURE
2. CARD EDITING
3. DISPLAY SETUP
4. OTHER FUNCTIONS
PRESS MENU TO EXIT
CARD EDITING
RECORD TO TAPE ▶ ---- YES
AUTO PRINT ▶ ---- YES
CARD FORMAT ----▶YES
RETURN ▶---- YES
PRESS MENU TO EXIT
CARD FORMAT
FORMAT WILL ERASE
ALL PICTURES
NO ---- RETURN
YES
CARD FUNCTIONS
1. ERASE PICTURE
2. CARD EDITING
3. DISPLAY SETUP
4. OTHER FUNCTIONS
PRESS MENU TO EXIT
OTHER FUNCTIONS
REMOTE ▶VCR1
BEEP SOUND▶OFF
FILE NO ---- ▶RESET
RETURN ▶--- YES
PRESS MENU TO EXIT

Making the Unusable MultiMediaCard Usable (Formatting)

If the MultiMediaCard can no longer be read by the Movie Camera, it may be possible to make it usable again by formatting it.
After formatting, the previously recorded pictures cannot be recovered any more.

After putting the Movie Camera in the Card Playback Mode... (→ 68)

1 **Select [CARD EDITING] on the [CARD FUNCTIONS] Main-Menu. (→ 94)**

2 **Turn the [PUSH] Dial to select [CARD FORMAT] and then press it.**
The confirmation message appears.

3 **Turn the [PUSH] Dial to select [YES] and then press it.**
The formatting starts.
When the formatting has finished, the screen becomes white.

- We recommend that you use the AC Adaptor as power source when you format the MultiMediaCard to ensure uninterrupted power supply during formatting.

File Numbering System

When you record still pictures on the MultiMediaCard, the Movie Camera sequentially assigns file numbers which are automatically recorded together with each picture. However, when you use several MultiMediaCards or erase pictures, the numbers on a MultiMediaCard may no longer be in sequence. The file numbers can be confirmed if you import the pictures into the computer.

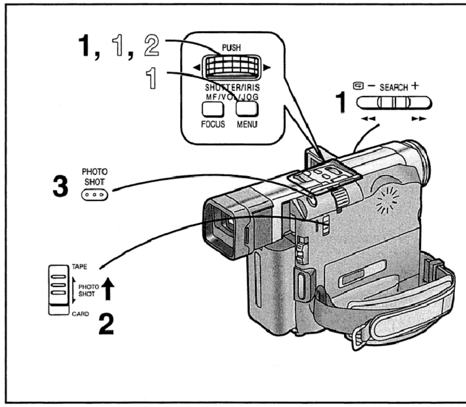
- If you want to record the pictures with file numbers starting from 0001, format the MultiMediaCard and then reset the file numbers.
- When the last picture recorded on the MultiMediaCard is numbered 0010.JPG, for example, the next picture recorded even after resetting the file numbers is numbered 0011.JPG.

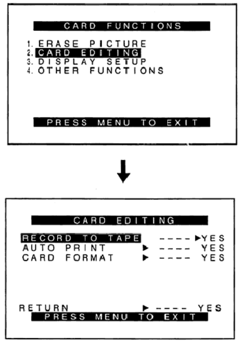
Resetting the File Numbers in the Movie Camera

1 **Select [OTHER FUNCTIONS] on the [CARD FUNCTIONS] Main-Menu. (→ 94)**

2 **Set [FILE NO] to [RESET].**
The file number is now reset to zero.

- Formatting the MultiMediaCard does not reset the file numbers in the Movie Camera.





```
CARD FUNCTIONS

1. ERASE PICTURE
2. CARD EDITING
3. DISPLAY SETUP
4. OTHER FUNCTIONS


PRESS MENU TO EXIT
```

```
CARD EDITING

RECORD TO TAPE       ----▶YES
AUTO PRINT      ▶    ----  YES
CARD FORMAT     ▶    ----  YES


RETURN          ▶    ----  YES
PRESS MENU TO EXIT
```

Copying Still Pictures from the MultiMediaCard onto the Cassette

(Picture Transmission)

It is possible to copy the still pictures recorded on the MultiMediaCard onto the cassette.

After putting the Movie Camera in the Card Playback Mode... (➜ 68)

Copying a Single Picture on the MultiMediaCard onto the Cassette

1 **Display the desired picture.** (➜ 68)

2 **Slide the [TAPE/CARD] Selector to [TAPE].**

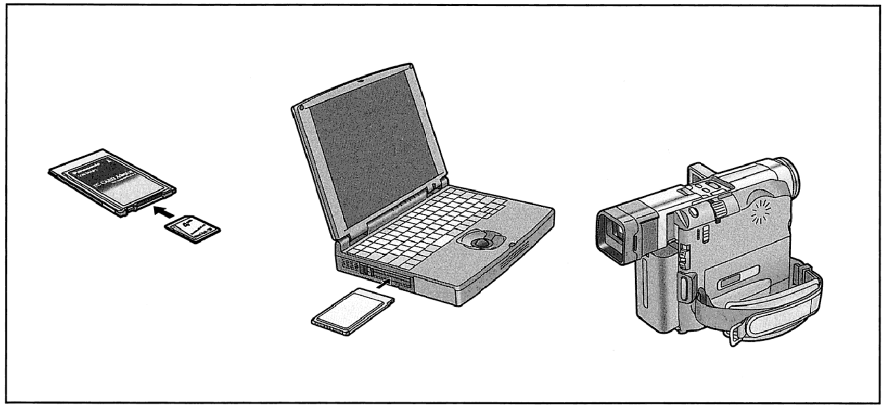
3 **Press the [PHOTO SHOT] Button.**
It takes approximately 7 seconds to copy the still picture onto the cassette.

Copying All Pictures on the MultiMediaCard onto the Cassette (Picture Transmission)

1 **Select [CARD EDITING] on the [CARD FUNCTIONS] Main-Menu. (➜ 94)**

2 **Set [RECORD TO TAPE] to [YES].**
It takes approximately 7 seconds for each of the pictures to be copied onto the cassette.
To stop the copying midway, press the [■] Button.

- When you want to copy pictures from the MultiMediaCard onto the cassette, using the Blank Search Function **(➜ 34)** makes it easy to locate the end of the recorded part or a blank part on the cassette.
- When you copy a picture from the MultiMediaCard onto the cassette, an (Photoshot) index signal is automatically recorded with it. This makes it possible to use the Index Search Function **(➜ 35)** or the Auto Print Function.
- When you use the Picture Transmission Function to copy pictures from the MultiMediaCard onto the cassette, the grandual transition from one picture to the next is also recorded for approximately 1 second each.
- When you play back the pictures copied from the MultiMediaCard onto the cassette using the Picture Transmission Function, the Date/Time Indication disappears momentarily during the grandual transition from one picture to the next.

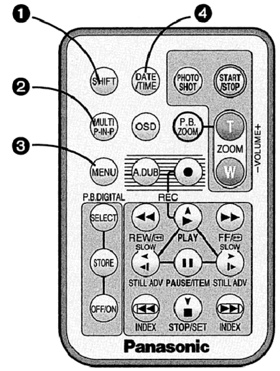


Using the Pictures Recorded on the MultiMediaCard on the Computer

Using the PC Card Adaptor (VW-MAP1E; optional) lets you view the still pictures recorded on the MultiMediaCard on a computer equipped with PC Card Type II Slot that conforms with the PC Card standard. For details on the use, also read the operating instructions of the computer and the PC Card Adaptor.

- By using the PC Card Adaptor (optional), you can import the still pictures recorded on the MultiMediaCard directly into a laptop computer or digital video printer.
- To erase pictures that you recorded on the MultiMediaCard by using the Movie Camera, be sure to erase them on the Movie Camera, not on the computer.
- You can import still pictures into the computer for editing and to add creative effects. (After editing or changing the picture data, playback on the Movie Camera is no longer possible.)
- If you record on the computer some data that is incompatible with the Movie Camera, it cannot be recognized on the Movie Camera.
- If you make any changes to the pictures on the MultiMediaCard after acquiring them on the computer, searching for pictures on that MultiMediaCard may no longer be possible.
- The MultiMediaCards can be used on computers that run Microsoft® Windows® 95/98 or Mac OS* (system 7.5 or newer).

* By using PC Exchange



Remote Controller

Using the wireless Remote Controller supplied with the Movie Camera allows operating most of the Movie Camera's major functions from a distance.

Buttons on the Remote Controller

❶ **Shift Button [SHIFT]**
To change the part of the picture to be enlarged in the Playback Zoom Mode when pressed together with one of the Direction Buttons. **(➜ 62)**
In this case, the functions of the following buttons are changed:

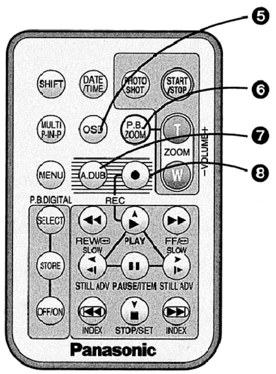
Play Button → Upward Direction Button [▲]
Slow/Still Advance Button → Left/Right Direction Button [◀, ▶]
Stop Button → Downward Direction Button [▼]

❷ **Multi-Picture/Picture-in-Picture Button [MULTI/P-IN-P]**
To operate the same functions as with the corresponding button on the Movie Camera. **(➜ 44, 45, 47, 56, 57, 58)**

❸ **Menu Button [MENU]**
To display the menu. **(➜ 94)**
In this case, the functions of the following buttons are changed:

Pause Button → Item Button
To select items on the Menu.
Stop Button → Setting Button
To set the mode for the selected item.

❹ **Date and Time Button [DATE/TIME]**
To make the Date/Time Indication appear or disappear in the picture during recording or playback. **(➜ 120)**

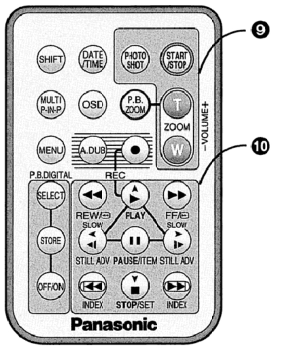

⑤
⑥
⑦
⑧
SHIFT
DATE/TIME
PHOTO SHOT
START/STOP
MULTI P-IN-P
OSD
P.B. ZOOM
T
ZOOM
W
−VOLUME+
MENU
A.DUB
P.B.DIGITAL
REC
SELECT
REW/⊟ SLOW
PLAY
FF/⊟ SLOW
STORE
STILL ADV PAUSE/ITEM STILL ADV
OFF/ON
INDEX
STOP/SET
INDEX
Panasonic

⑤ **Indication Output Button [OSD]**
To display the function and operation indications on a connected TV. (➜ **31**)

⑥ **Playback Zoom Button [P.B.ZOOM]**
To enlarge a part of the playback picture. (➜ **62**)

⑦ **Audio Dubbing Button [A.DUB]**
To perform audio dubbing. (➜ **63**)

⑧ **Recording Button [REC]**
To dub digital signals input into the Movie Camera via the DV Input/Output Terminal, press the [REC] Button and the [PLAY] Button together. (➜ **81**)


⑨
⑩
SHIFT
DATE/TIME
PHOTO SHOT
START/STOP
MULTI P-IN-P
OSD
P.B. ZOOM
T
ZOOM
W
−VOLUME+
MENU
A.DUB
P.B.DIGITAL
REC
SELECT
REW/⊟ SLOW
PLAY
FF/⊟ SLOW
STORE
STILL ADV PAUSE/ITEM STILL ADV
OFF/ON
INDEX
STOP/SET
INDEX
Panasonic

⑨ **Controls for Recording and Sound Volume**

Photoshot Button [PHOTO SHOT]
To record still pictures. (➜ **22**)

Recording Start/Stop Button [START/STOP]
To start and pause recording. (➜ **17**)

Zoom/Sound Volume Buttons [ZOOM/VOLUME]

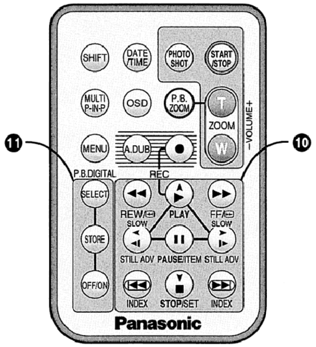
CAMERA Mode:	To zoom in and out. (➜ **20**)
VCR Mode:	To adjust the volume of the playback sound. (➜ **27**) To change the zoom magnification of the Playback Zoom. (➜ **62**)

⑩ **Controls for Playback and Menu Setting**

Rewind/Review Button [◀◀]
To start review playback (➜ **28**) if pressed during normal playback; and to rewind the tape if pressed in the Stop Mode.
Also to activate the Camera Search Function (➜ **33**) in reverse direction if kept pressed in the Recording Pause Mode. Pressing it briefly activates the Recording Check Function (➜ **18**).

Fast-forward/Cue Button [▶▶]
To start cue playback (➜ **28**) if pressed during normal playback; and to fast-forward the tape if pressed in the Stop Mode.
Also to activate the Camera Search Function (➜ **33**) in forward direction if kept pressed in the Recording Pause Mode.

Play Button [▶]
VCR MODE:
To start playback. (➜ **27**)
Or, when pressed together with the [SHIFT] Button, to shift upward the part of the picture to be enlarged in the Playback Zoom Mode. (➜ **62**)
Card P.B Mode:
To play back all still pictures stored on the MultiMediaCard in succession for 6 seconds each. (➜ **68**)


⑪
⑩
SHIFT
DATE/TIME
PHOTO SHOT
START/STOP
MULTI P-IN-P
OSD
P.B. ZOOM
T
ZOOM
W
−VOLUME+
MENU
A.DUB
P.B.DIGITAL
REC
SELECT
REW/⊟ SLOW
PLAY
FF/⊟ SLOW
STORE
STILL ADV PAUSE/ITEM STILL ADV
OFF/ON
INDEX
STOP/SET
INDEX
Panasonic

⑩ **Controls for Playback and Menu setting (Continued)**

Slow Motion/Still Advance Button [◂I, I▸]
To perform Slow Motion Playback if pressed in the Normal Playback Mode; and to perform Still Advance Playback if pressed in the Still Playback Mode. (➜ **29, 30**)
(◂I: in reverse direction, I▸: in forward direction)
Or, when pressed together with the [SHIFT] Button, to shift to the left or right the enlarged part of the picture in the Playback Zoom Mode. (➜ **62**)

Index Search Button [I◀◀, ▶▶I]
To search for recorded scenes marked with an index signal and for still images recorded in the Photoshot Mode. (➜ **36, 37**)
(I◀◀: in reverse direction, ▶▶I: in forward direction.)
To locate the tape position of a small still picture displayed in the Multi-Picture Mode. (➜ **60**)
(In this case, select the desired still picture on the screen and then press either button.)

Stop Button [■]
To stop the tape. (➜ **27**)
Or when the menu is displayed, to set a desired mode or value for the selected item. (➜ **94**)
Or, when pressed together with the [SHIFT] Button, to shift downward the enlarged part of the picture in the Playback Zoom Mode. (➜ **62**)

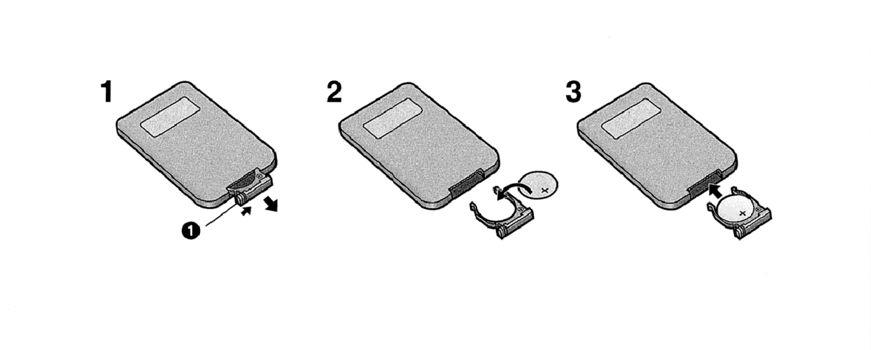
Pause Button [❚❚]
To pause playback. (➜ **30**) The playback picture stands still.
Or when the menu is displayed, to select an item. (➜ **94**)

⑪ **Playback Digital Effects**

Selection Button [SELECT]
To select the desired digital effect for [EFFECT SELECT] on the [DIGITAL EFFECT] Sub-Menu of the [VCR FUNCTIONS] Main-Menu. (➜ **55**)

Store Button [STORE]
To store a still picture in memory for the Wipe or Mix Function. (➜ **61**)

Off/On Button [OFF/ON]
To suspend the selected digital effect or re-activate it. (➜ **55**)
To start a Wipe or Mix transition from the still picture stored in memory. (➜ **61**)



Remote Controller (Continued)

■ Inserting the Button-type Battery

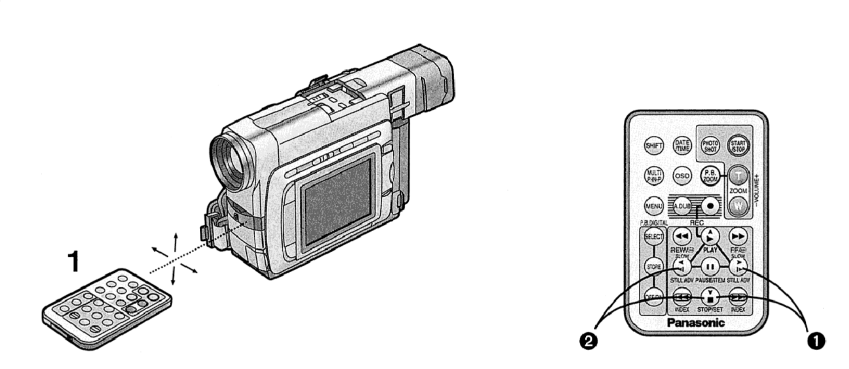
Insert the supplied button-type battery before using the Remote Controller.

1. **Pull out the Battery Holder while pressing the Stopper ❶.**
2. **Insert the button-type battery with the stamped (+) mark facing upward.**
3. **Insert the Battery Holder into the Remote Controller.**

- When the button-type battery is exhausted, replace it with a new CR2025 battery.
  (The life of the battery is about 1 year. However, it depends on the frequency of use.)
- **Keep the button-type battery out of the reach of children.**
- Make sure you insert the battery with its poles correctly aligned.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.



■ Using the Remote Controller

1. **Aim the Remote Controller at the Remote Control Sensor on the Movie Camera and press the appropriate button.**
   Distance to the Movie Camera: Less than 5 metres.
   Angle: Approximately 15° up, down, left and right from centre axis.

- The operative range described above is valid for using the Remote Controller indoors.
  When using it outdoors or under strong lights, it may not work correctly even within the above range.
- Within a distance of about 1 metre, it is also possible to use the Remote Controller from the side (LCD Monitor side).

Selecting the Remote Controller Mode

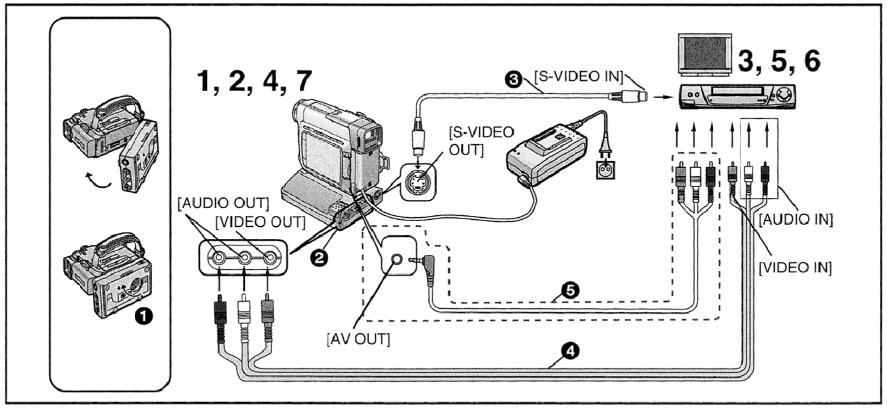
When using two Movie Cameras at the same time, selecting different Remote Controller Modes makes it possible to operate them separately.

- If the Remote Controller Mode set on the Movie Camera and on its Remote Controller are not matched, the [REMOTE] Indication appears.

Setting to Be Made on the Movie Camera:
Set [REMOTE] on the [OTHER FUNCTIONS] Sub-Menu to the desired Remote Controller Mode.

Setting to Be Made on the Remote Controller:
[VCR1]: Press the [▮▶] Button and [■] Button simultaneously. ❶
[VCR2]: Press the [◀▮] Button and [■] Button simultaneously. ❷

- Replacing the button-type battery in the Remote Controller automatically resets it to the [VCR1] Mode.



Copying onto an S-VHS (or VHS) Cassette (Dubbing)

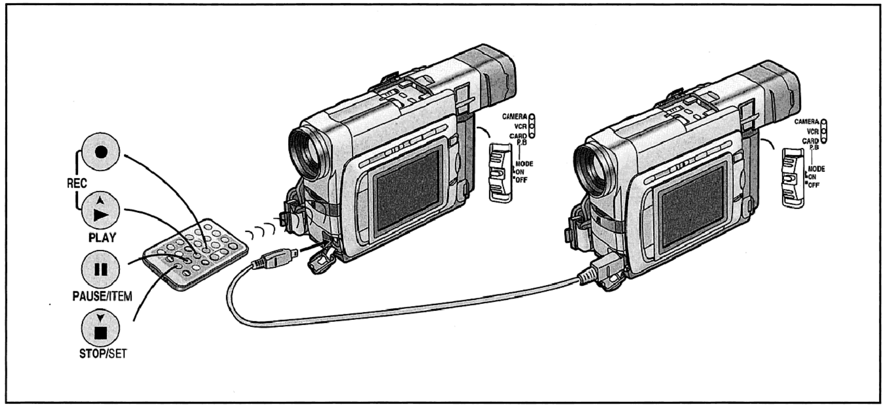
If you attach the Output Terminal Box, you can copy cassettes recorded from this Movie Camera onto S-VHS or VHS cassettes.

After connecting all equipment as shown above, perform the following operations.

- To connect the Movie Camera to the VCR, you can use either the AV Cable ❹ or ❺, however, do not connect both cables at the same time.
- Before copying, be sure to press the [OSD] Button on the Remote Controller (➔ 75) so that no indications are visible. Otherwise, the displayed tape counter and function indications are also copied.

1. **[Movie Camera]**
   Insert the recorded cassette.
2. **Attach the Output Terminal Box [AV ONE TOUCH STATION] to the underside of the Movie Camera with the Screw ❶.**
3. **[VCR]**
   Insert an unrecorded cassette with intact erasure prevention tab.
   As some settings (external input, tape speed, etc.) on the VCR are necessary, please refer to your VCR's operating instructions.
4. **[Movie Camera]**
   Press the Playback Button [▶] to start playback.
5. **[VCR]**
   Press the Recording Button to start recording.
6. **[VCR]**
   Press the Pause or Stop Button to stop recording.
7. **[Movie Camera]**
   Press the Stop Button [■] to stop playback.

❷ Output Terminal Box
❸ S-Video Cable
❹ AV Cable (PHONO-PHONO)
❺ AV Cable (PHONO-M3)



Using with Digital Video Equipment

(Recording)

If you connect this Movie Camera with other Digital Video equipment (for example another Movie Camera of the same type) equipped with DV Input/Output Terminal (i.LINK) using the DV Cable VW-CD1E (optional), you can dub high-quality picture and sound in the digital format.

1 **[Playback Unit]**
Insert the recorded cassette and slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.

2 **[Recording Unit]**
Insert a cassette onto which you want to perform dubbing and slide the [OFF/ON/MODE] switch so that the [VCR] Lamp lights.

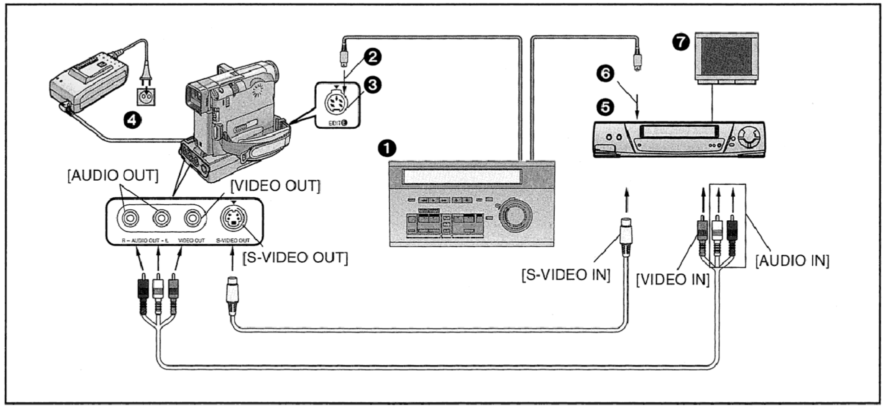
3 **[Playback Unit]**
Press the Playback Button [▶] to start playback.

4 **[Recording Unit]**
While pressing the [REC] Button, press the [PLAY] Button (both on the Remote Controller).
Recording starts.

Stopping Recording

Press the Pause Button [❚❚] or the Stop Button [■] to stop recording.

- Regardless of the setting for [AUDIO REC] on the Menu of the recording unit, dubbing is performed in the same audio recording mode as that of the cassette in the playback unit.
- The lower part of the monitor picture of the recording unit (the picture displayed on the LCD Monitor, Finder or TV) may be distorted, or the picture may roll up and down. However this is not a malfunction and does not affect the actually recorded pictures.
- If the DV Cable is not connected, a blank picture is recorded.
- If you set [REC SPEED] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] Menu to [LP] on the recording unit, the possible recording time is 1.5 times as long as in the SP Mode. (➜ 98)



Copying with the Help of an Editing Controller

If you connect the Movie Camera to an Editing Controller equipped with 5-pin Edit Socket, this Movie Camera's playback functions can be controlled from the Editing Controller.
(The Output Terminal Box [AV ONE TOUCH STATION] is necessary.)

After connecting all equipment as shown above, perform the necessary operations.

When Connecting the Editing Controller VW-EC500E ❶ (optional)

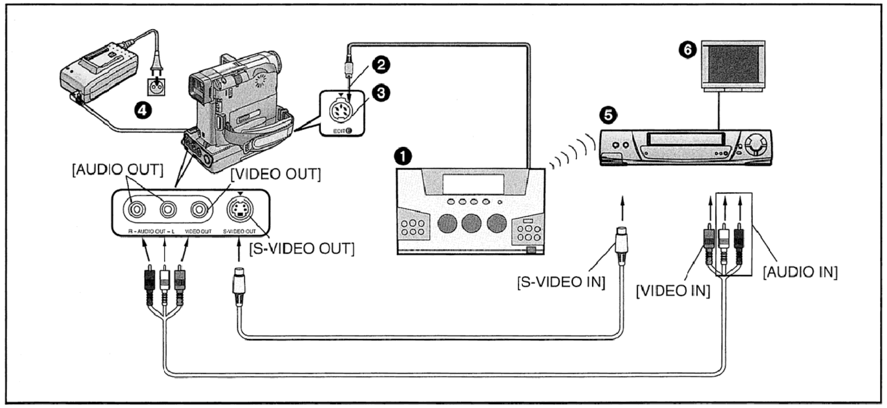
- A VCR equipped with 5-pin Edit Socket is necessary.
- When you connect the VW-EC500E to the Movie Camera, an adjustment on the VW-EC500E is necessary. For the operation of the Editing Controller, refer to its operating instructions.

When Editing with Time Code

Set [DISPLAY] on the [DISPLAY SETUP] Sub-Menu of the [VCR FUNCTIONS] Main-Menu to [TIMECODE] to make the Time Code appear.

- When the Time Code is displayed, the Time Code Signal is output from the Edit Socket.
- When the Counter Indication is displayed, the Linear Tape Counter Signal is output.

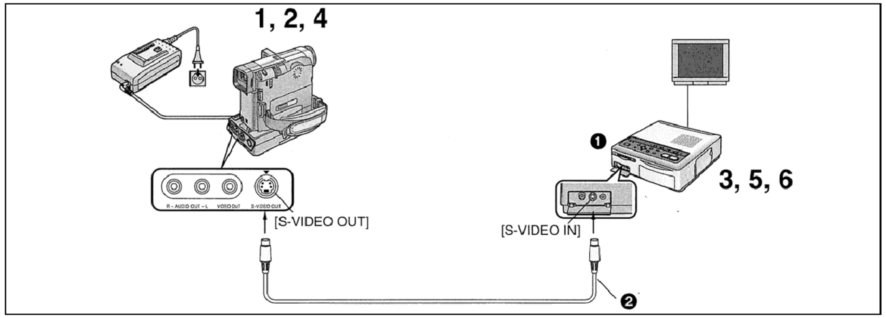
❷ To Edit Socket
❸ Edit Socket
❹ Connect the AC Adaptor.
❺ VCR (not supplied)
❻ To Edit Socket
❼ TV (not supplied)



When Connecting the Editing Controller VW-EC1E ❶ (optional)

- When you use the Editing Controller VW-EC1E, it is not necessary to connect it to the Edit Socket on the VCR, as the VCR's operation is performed via infrared remote control. Therefore, editing is also possible onto VCRs not equipped with an Edit Socket.
- For the operation of the Editing Controller, refer to its operating instructions.

❷ To Edit Socket
❸ Edit Socket
❹ Connect the AC Adaptor.
❺ VCR (not supplied)
❻ TV (not supplied)



Using the Movie Camera with a Video Printer

If you connect the Movie Camera to a Video Printer ❶, you can print still pictures from scenes recorded with the Movie Camera.

Movie Camera:

1 Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.

2 Insert a recorded cassette.

Video Printer:

3 Turn the Video Printer on.

Movie Camera:

4 Press the Play Button [▶].

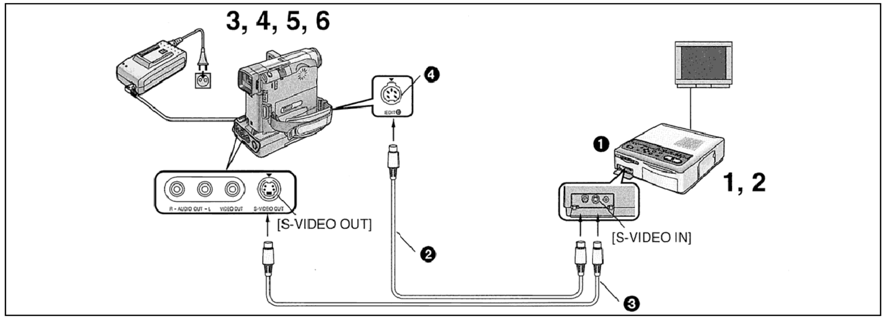
Video Printer:

5 Store the image in memory.

6 Start printing.

- For details about the operation of the Video Printer, read its operating instructions.
- Compatibility cannot be guaranteed for pictures recorded on other video equipment and played back on this Movie Camera, or vice versa.

❷ S-Video Cable



Using the Automatic Printing Function

(Autoprint)

If you connect the Movie Camera to a Video Printer ❶ equipped with a 5-pin Edit Socket, you can use the Autoprint Function to automatically print all still pictures recorded with the Photoshot Function. You can also select and print a single multi-picture from the displayed multi-pictures.

Video Printer:

1 Turn the Video Printer on.

2 Make the necessary settings on the Video Printer according to the input signal.

Movie Camera:

3 Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.

To print all recorded Photoshot pictures automatically:

4 Search for the first still picture from which you want to start printing with the Autoprint Function.
If you want to print all still pictures recorded on the cassette, rewind the tape to its beginning.

To print a single Multi-Picture:

4 When still pictures are displayed in the Multi-Picture Mode, turn the [PUSH] Dial to select the picture that you want to print. (→ 60)

5 Press the [MENU] Button.

6 Set [AUTOPRINT] on the [OTHER FUNCTIONS] Sub-Menu to [YES].
Automatic printing starts.

- If you want to stop the automatic printing in the middle, press the Stop Button [■] on the Movie Camera.

❷ Edit Cable VW-K5E (optional)

❸ S-Video Cable

❹ Edit Socket

- When the cooling function of the Video Printer is activated and the printing speed slows down, automatic printing may stop. In this case, set [AUTOPRINT] on the [OTHER FUNCTIONS] Sub-Menu on the [VCR FUNCTIONS] Main-Menu to [YES] again.

- If you replace the ink cassette or paper during printing, the same picture may be printed twice.

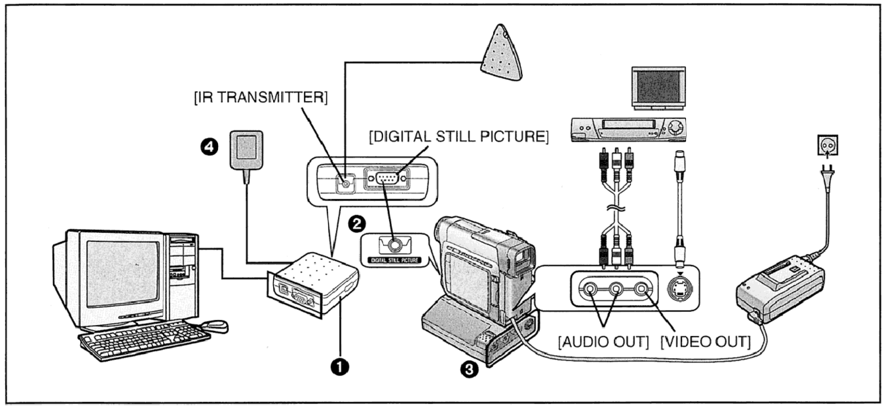
- If still pictures are recorded successively in the Photoshot Mode, some pictures may be skipped during printing.

- Before storing an image in memory on the Video Printer, press the [OSD] Button (→ 75) on the Remote Controller of the Movie Camera so that no indications appear in the picture. Otherwise, the Counter Indication and other function indications are also printed in the picture.

- The [PRINTER ERROR] Indication appears if the Movie Camera is not correctly connected to the Video Printer or when the ink cassette and/or the paper in the Video Printer are not loaded or used up.
- As index signals are not recorded with the still pictures recorded in the Continuous Photoshot Mode, automatic printing of these pictures is not possible.

- If you select one of 9 pictures displayed in the Strobe Multi-Picture Mode and print it with the Autoprint Function, the tape position of the selected picture may not be precise.
- In the following cases, some pictures may be skipped when printing with the Auto Print Function.
  - When you print still pictures recorded in the Photoshot Mode on a video camera of another brand.
  - If you turn the Movie Camera on and off several times (3 times or more) between recording two still pictures in the Photoshot Mode.
  - When you record a still picture in the Photoshot Mode on the same part of a cassette where a Photoshot picture was recorded before.
  - When you select a different recording speed (SP/LP) between the recording of two still pictures in the Photoshot Mode.
  - At the first Photoshot picture to be printed.

- A picture that is recorded very close to the beginning of the tape may not be printed.
- Pictures that you have edited or composed on a Video Printer (NV-MPD1EN, NV-MPD5EN, NV-MPD7EN) can be saved on the MultiMediaCard, however, they can no longer be played back on this Movie Camera.



Using the Movie Camera with a Computer

The Personal Computer Connection Kit VW-DTA9E (optional) or VW-DTA10E/B (optional) for Digital Video Cameras makes it possible to connect the Movie Camera to a computer and transmit still video images to it. (The Output Terminal Box [AV ONE TOUCH STATION] is also necessary.)

The above illustration shows the connections in case of using the VW-DTA10E/B. For the VW-DTA9E, refer to its operating instructions.

Computer System Requirements (VW-DTA10E/B)

DV STUDIO2 can be installed in a PC/AT compatible personal computer which can run Microsoft® Windows® 95/98.

Compatible machines:
Personal computer with 80486DX4 or higher CPU (Pentium™ or higher recommended)

Graphic card:
True Color (approx. 16.7 million colours) recommended (operation also possible even with 256 colours)

Installed memory:	16 MB or more (32 MB or more recommended)
Free hard disk space:	At least 16 MB
Disk drive:	CD-ROM drive
Ports:	RS-232C (D-sub 9pin) or USB
Other requirements:	Mouse

To connect the Movie Camera to the computer, use the special Interface Box ❶ contained in the Personal Computer Connection Kit.

- To use the DV STUDIO2 software via USB, a computer with Windows® 98 preinstalled is necessary.
- Pictures that you intend to import from cassette into computer applications should be recorded in the SP Mode.
- When recording, take care that the Time Code is uninterrupted from the beginning of the tape.
- For detailed explanations on the operating environment, connections and operations, refer to the Personal Computer Connection Kit's operating instructions.

❷ Digital Still Picture Terminal

❸ Output Terminal Box [AV ONE TOUCH STATION]

❹ AC Adaptor

For Those Who Use the Personal Computer Connection Kit (VW-DTA10E/B)

With the Personal Computer Connection Kit (VW-DTA10E/B; optional), you can perform the following operations:

❶ Importing still pictures into the computer when the Movie Camera is in the VCR Mode

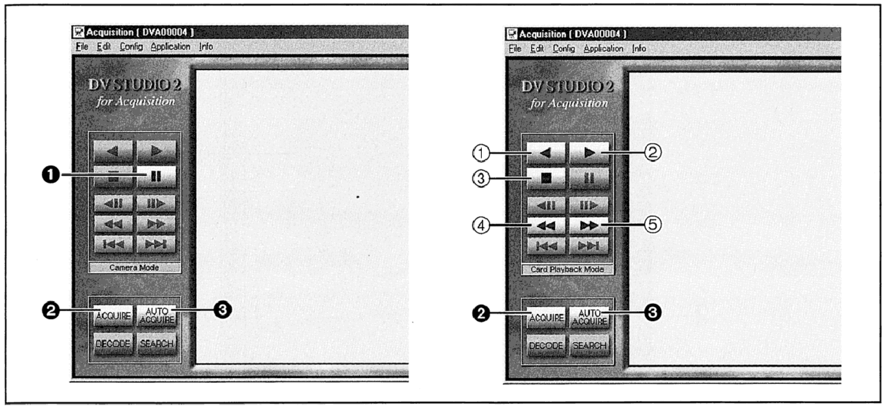
❷ Importing still pictures into the computer when the Movie Camera is in the Camera Mode

❸ Importing still pictures into the computer when the Movie Camera is in the Card Playback Mode

❹ Easy editing

Only the above functions ❷ and ❸ are explained here. For the other functions, refer to the operating instructions of the Personal Computer Connection Kit (VW-DTA10E/B).

- When the Movie Camera is in the Camera Mode or Card Playback Mode, it is not possible to perform Easy Editing ❹ by using [DV STUDIO 2 for Editing].
- Follow the operation steps explained on pages 89–93 after making all necessary connections and installing the software of the Personal Computer Connection Kit on the computer.
- To be able to operate the Movie Camera from the computer (e.g. to locate the position on the cassette or MultiMediaCard of a picture in a DV album or to decode an acquired picture), select the VCR Mode for pictures recorded on the cassette, or the Card Playback Mode for pictures recorded on the MultiMediaCard.
- Communications may sometimes be interrupted by the operations of the OS or other software that is running simultaneously. If this should happen, reconnect after the other operation is complete.



Parts and their functions (Camera Mode)

When the Movie Camera is in Camera Mode, only the buttons that can actually be used are active.

- The functions of the following on-screen buttons are different from those of the same buttons on the Movie Camera.

❶ **Still [❚❚]**
To capture a still picture through the camera lens, or to cancel the still picture mode.

❷ **Acquire [ACQUIRE]**
Click this button to acquire the scene as a still picture.

❸ **Auto acquire [AUTO ACQUIRE] (➜ 91)**
The scene is automatically acquired as still pictures.

(Card Playback Mode)

① **Back [◀]**
Each time the button is clicked, the preceding memory screen is displayed.

② **Forward [▶]**
Each time the button is clicked, the next memory screen is displayed.

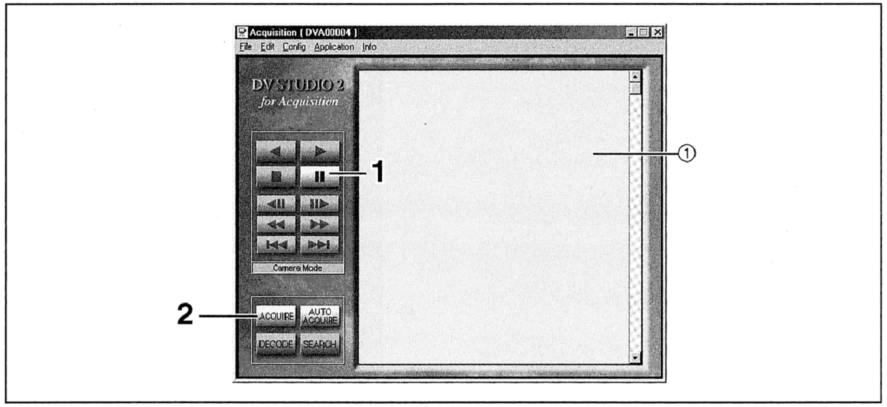
③ **Multi-picture display [■]**
To display the still pictures in the Multi-Picture Mode.
To switch back to the normal single-picture mode, click this button again.

④ **Back (multi-picture display) [◀◀]**
Each time the button is clicked, the preceding multi-picture screen is displayed.

⑤ **Forward (multi-picture display) [▶▶]**
Each time the button is clicked, the next multi-picture screen is displayed.

- The buttons ❷ and ❸ described above for the Camera Mode can also be used in the Card Playback Mode.

For information on functions not described here, see “Parts and their functions” of the Personal Computer Connection Kit's operating instruction (VW-DTA10E/B).



Acquiring digital still pictures in Camera Mode to create a DV album

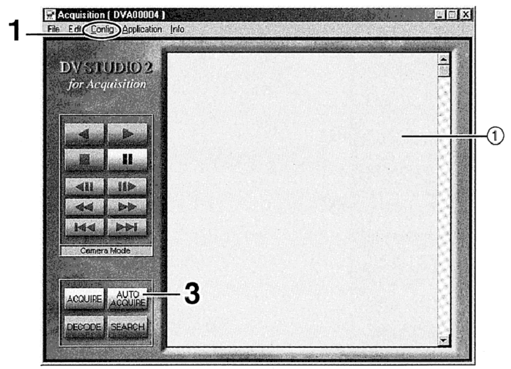
Use the procedure described below to acquire a digital still picture through the camera lens. Connect your Movie Camera and personal computer. Next, set the Movie Camera to Camera Mode and open the application.

- In this mode, operate the Movie Camera without a cassette inserted. Otherwise it automatically switches off to conserve battery power.
- In this mode, turn off the Movie Camera's Demonstration Mode.
- The functions of the following on-screen buttons are different from those of the same buttons on the Movie Camera.

1 **Point the Movie Camera at the desired object and click [❚❚].**
The picture is captured as a still picture.
- If you do not like the picture, you can cancel it by clicking the same button again.

2 **Click [ACQUIRE].**
Picture acquisition now starts. When acquisition is completed, the acquired picture appears on the picture display ①.
- To capture and acquire another picture, click [❚❚] and then repeat steps 1 and 2.
- To cancel an acquisition, click [Cancel].

- Due to the possibility of an incorrect operation, do not operate the Movie Camera directly when the acquire button has been operated at the DV STUDIO2 end.
- When the Movie Camera is in the Camera Mode, it is not possible to use [Print on Video Printer] in the [File] menu.
- It is not possible to use [Print on Video Printer] and [Search Picture] in the Context Menu.
- When [PROGRESSIVE] in the [CAMERA SETUP] Sub-Menu is set to [AUTO] (**➜ 23**), the acquired picture has only normal resolution–not the higher “Progressive” resolution.


1
Acquisition (DVA00004)
File Edit Config Application Info
DV STUDIO 2
for Acquisition
Camera Mode
ACQUIRE
AUTO ACQUIRE
DECODE
SEARCH
3
①

Automatically acquiring digital still pictures in Camera Mode to create a DV album

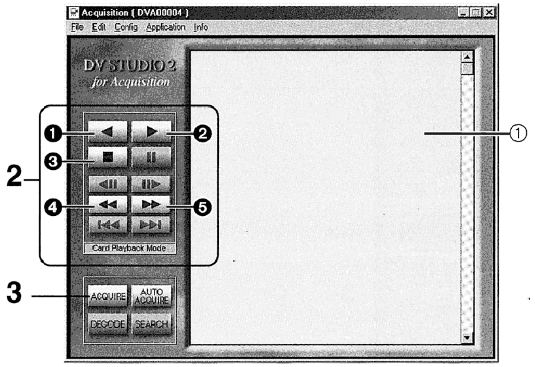
Use the procedure described below to automatically acquire a digital still picture through the camera lens. Connect your Movie Camera and personal computer. Next, set the Movie Camera to Camera Mode and open the application.

1 Select the acquisition method under [Auto Acquire Settings] in [Config].
Select the acquisition interval under “Interval Time”.
The Interval times are subject to slight imprecisions.

2 Point the Movie Camera at the desired object.

3 Click [AUTO ACQUIRE].
Picture acquisition now starts. Still pictures are acquired at the selected time intervals, and the acquired pictures appear in sequence on the picture display ①.
- To stop auto acquire, click [Cancel].

- Due to the possibility of an incorrect operation, do not operate the Movie Camera directly when the acquire button has been operated at the DV STUDIO2 end.


Acquisition (DVA00004)
File Edit Config Application Info
DV STUDIO 2
for Acquisition
2
❶
❷
❸
❹
❺
Card Playback Mode
3
ACQUIRE
AUTO ACQUIRE
DECODE
SEARCH
①

Acquiring Card Photoshot pictures to create a DV album

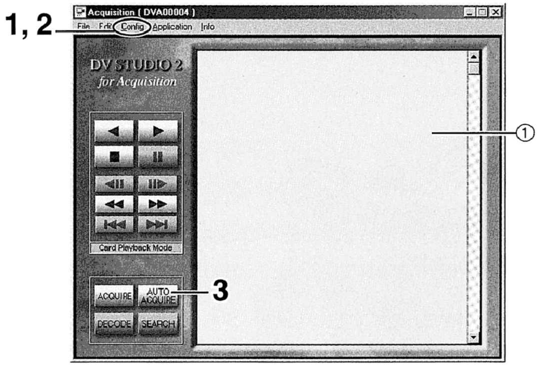
Use the procedure described below to acquire still pictures saved on a MultiMediaCard. Insert the MultiMediaCard containing the desired pictures in your Movie Camera, then connect your Movie Camera and personal computer. Next, set the Movie Camera to Card Playback Mode and open the application.
- In case you cannot perform operations, check if the MultiMediaCard is correctly inserted.

1 Select the desired acquisition format under [Acquire Format] in [Config].
- Select [Full Acquire Mode] or [Fast Preview Mode].

2 Use the Movie Camera control buttons to find the desired picture.
Click [◀] ❶ or [▶] ❷ to view the pictures one at a time.
If the MultiMediaCard contains a large number of pictures, click [■] ❸ to switch to a multi-picture screen. You can then click [◀◀] ❹ or [▶▶] ❺ to view nine pictures at a time.

3 Click [ACQUIRE].
Picture acquisition now starts. When acquisition is completed, the acquired picture appears on the picture display ①.

- To cancel an acquisition, click [Cancel].
- Due to the possibility of an incorrect operation, do not operate the Movie Camera directly when the acquire button has been operated at the DV STUDIO2 end.
- It is not possible to use [Print on Video Printer] in the Context Menu.


1, 2
Acquisition (DVA00004)
File Edit Config Application Info
DV STUDIO 2
for Acquisition
Card Playback Mode
ACQUIRE
AUTO ACQUIRE
DECODE
SEARCH
3
①

Automatically acquiring Card Photoshot pictures to create a DV album

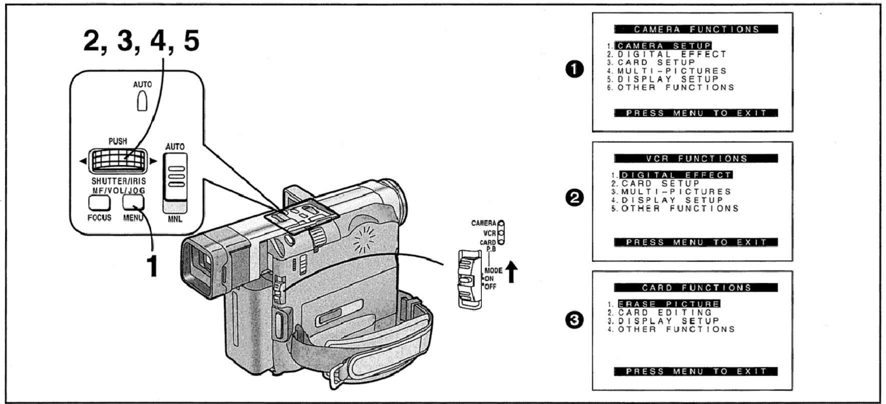
Use the procedure described below to automatically acquire still pictures saved on a MultiMediaCard. Insert the MultiMediaCard containing the desired pictures in your Movie Camera, then connect your Movie Camera and personal computer. Next, set the Movie Camera to Card Playback Mode and open the application.

1 Select the desired acquisition format under [Acquire Format] in [Config].
- Select [Full Acquire Mode] or [Fast Preview Mode].

2 Select the acquisition method under [Auto Acquire Settings] in [Config].
Select [From here] or [From Start Tape].
- If you want to acquire from the first recorded picture on the MultiMediaCard, select [From Start Tape].

3 Click [AUTO ACQUIRE].
Picture acquisition now starts. When acquisition is completed, the acquired pictures appear in sequence on the picture display ①.

- To stop auto acquire, click [Cancel].
- Due to the possibility of an incorrect operation, do not operate the Movie Camera directly when the acquire button has been operated at the DV STUDIO2 end.
- When you want to decode the picture acquired in the [Fast Preview Mode], click the [■] Button to switch back to the normal single-picture mode before starting the decoding.


2, 3, 4, 5
AUTO
PUSH
AUTO
SHUTTER/IRIS
MF/VOL/JOG
FOCUS
MENU
MNL
1
CAMERA
VCR
CARD P.B
MODE
ON
OFF
❶
CAMERA FUNCTIONS
1. CAMERA SETUP
2. DIGITAL EFFECT
3. CARD SETUP
4. MULTI-PICTURES
5. DISPLAY SETUP
6. OTHER FUNCTIONS
PRESS MENU TO EXIT
❷
VCR FUNCTIONS
1. DIGITAL EFFECT
2. CARD SETUP
3. MULTI-PICTURES
4. DISPLAY SETUP
5. OTHER FUNCTIONS
PRESS MENU TO EXIT
❸
CARD FUNCTIONS
1. ERASE PICTURE
2. CARD EDITING
3. DISPLAY SETUP
4. OTHER FUNCTIONS
PRESS MENU TO EXIT

Using the Menu Screen

This Movie Camera displays the settings of various functions in Menus to make it easy to select the desired functions and settings.

1 **Press the [MENU] Button.**
When the [CAMERA] Lamp is lit, Camera Mode Menu ❶ is displayed.
When the [VCR] Lamp is lit, VCR Mode Menu ❷ is displayed.
When the [CARD P.B] Lamp is lit, Card Playback Mode Menu ❸ is displayed.

2 **Turn the [PUSH] Dial to select the desired sub-menu.**
Turning the [PUSH] Dial changes the highlighted item.

3 **Press the [PUSH] Dial to display the selected sub-menu.**

4 **Turn the [PUSH] Dial to select the item to be set.**

5 **Press the [PUSH] Dial to set the selected item to the desired mode.**
Every press moves the cursor [▶] to the next mode.
Settings for the menu item(s) that cannot be used due to the combination of the selected functions are displayed in dark blue.

- While the menu is displayed, recording or playback is not possible. During playback, displaying the menu is possible, but not during recording.
- You can also perform the above operation by using the Remote Controller. (➜ 74)

Exiting the Menu

Press the [MENU] Button again.

Note About the Settings Made on the Menu

The settings you selected on the Menu are maintained when you turn the Movie Camera off. However, if you disconnect the power supply unit (Battery or AC Adaptor) from the Movie Camera before turning it off, the selected settings may not be maintained.

Menu Functions

The illustrations of the menus are intended for explaining the functions; the actual menus look somewhat different.

Camera Mode Main-Menu [CAMERA FUNCTIONS]

1. **CAMERA SETUP**
2. **DIGITAL EFFECT**
3. **CARD SETUP**
4. **MULTI-PICTURES**
5. **DISPLAY SETUP**
6. **OTHER FUNCTIONS**

[CAMERA SETUP] Sub-Menu ①

❶ Auto Exposure Mode [PROG.AE] (➜ 39)

❷ Progressive Photoshot Mode [PROGRESSIVE] (➜ 23)

❸ Super Image Stabilizer [SIS] (➜ 26)

❹ Digital Zoom [D.ZOOM] (➜ 21)

❺ Cinema-like Format Recording [CINEMA] (➜ 25)

❻ Shutter Effect [SHTR EFFECT] (➜ 22)

❼ Returning to the Camera Mode Main-Menu [RETURN]
If you set [RETURN] to [YES], the menu changes back to the [CAMERA FUNCTIONS] Main-Menu.

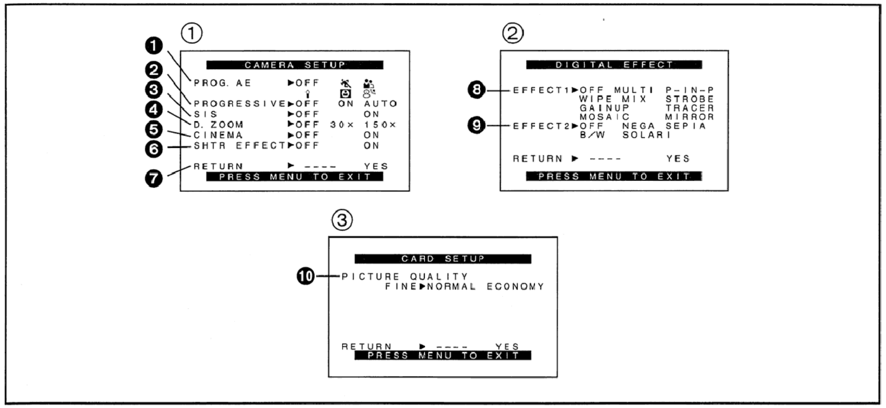
[DIGITAL EFFECT] Sub-Menu ②

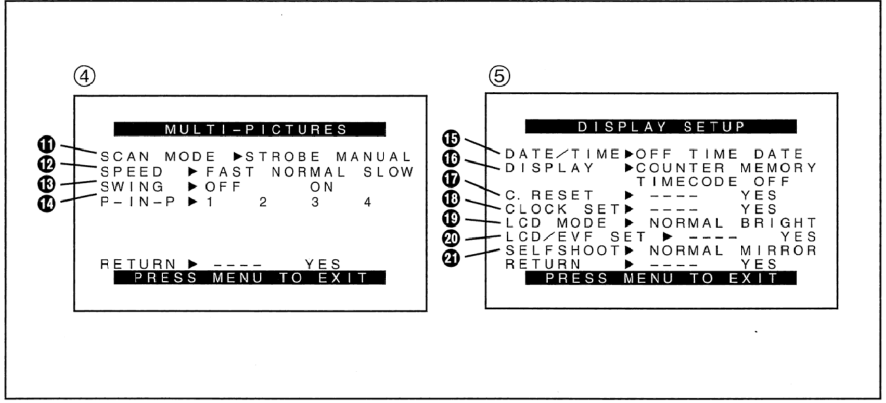
❽ Digital Effects 1 [EFFECT1] (➜ 41)

❾ Digital Effects 2 [EFFECT2] (➜ 42)

[CARD SETUP] Sub-Menu ③

❿ Picture Quality [PICTURE QUALITY] (➜ 67)


①
CAMERA SETUP
❶ PROG. AE ▶OFF
❷ PROGRESSIVE▶OFF ON AUTO
❸ SIS ▶OFF ON
❹ D. ZOOM ▶OFF 30× 150×
❺ CINEMA ▶OFF ON
❻ SHTR EFFECT▶OFF ON
❼ RETURN ▶ ---- YES
PRESS MENU TO EXIT
②
DIGITAL EFFECT
❽ EFFECT1▶OFF MULTI P-IN-P WIPE MIX STROBE GAINUP TRACER MOSAIC MIRROR
❾ EFFECT2▶OFF NEGA SEPIA B/W SOLARI
RETURN ▶ ---- YES
PRESS MENU TO EXIT
③
CARD SETUP
❿ PICTURE QUALITY FINE▶NORMAL ECONOMY
RETURN ▶ ---- YES
PRESS MENU TO EXIT


④
MULTI-PICTURES
⓫ SCAN MODE ▶STROBE MANUAL
⓬ SPEED ▶FAST NORMAL SLOW
⓭ SWING ▶OFF ON
⓮ P-IN-P ▶1 2 3 4
RETURN ▶ ---- YES
PRESS MENU TO EXIT
⑤
DISPLAY SETUP
⓯ DATE/TIME▶OFF TIME DATE
⓰ DISPLAY ▶COUNTER MEMORY TIMECODE OFF
⓱ C. RESET ▶ ---- YES
⓲ CLOCK SET▶ ---- YES
⓳ LCD MODE ▶ NORMAL BRIGHT
⓴ LCD/EVF SET ▶ ---- YES
㉑ SELFSHOOT▶ NORMAL MIRROR
RETURN ▶ ---- YES
PRESS MENU TO EXIT

Camera Mode Main-Menu [CAMERA FUNCTIONS] (Continued)

[MULTI-PICTURES] Sub-Menu ④

⓫ Multi-Picture Mode [SCAN MODE] (➜ 44, 45)

⓬ Strobe Multi-Picture Speed [SPEED] (➜ 44)

⓭ Swing Mode [SWING] (➜ 44)

⓮ Position of Small Picture inside Normal Picture [P-IN-P] (➜ 47)

[DISPLAY SETUP] Sub-Menu ⑤

⓯ Date and Time Indication [DATE/TIME] (➜ 120)

⓰ Counter Display Mode [DISPLAY] (➜ 120)

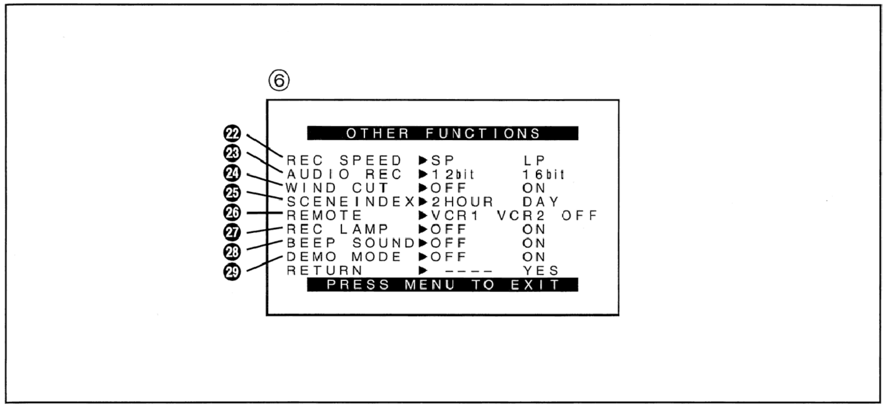
⓱ Counter Reset [C.RESET] (➜ 116)
To reset the counter to zero.
However, the Time Code cannot be reset

⓲ Date and Time Setting [CLOCK SET] (➜ 100)

⓳ LCD Lighting Mode [LCD MODE] (➜ 102)

⓴ LCD and Finder Adjustment [LCD/EVF SET] (➜ 102)

㉑ Self-Recording [SELFSHOOT] (➜ 19)


⑥
OTHER FUNCTIONS
REC SPEED ▶SP LP
AUDIO REC ▶12bit 16bit
WIND CUT ▶OFF ON
SCENEINDEX▶2HOUR DAY
REMOTE ▶VCR1 VCR2 OFF
REC LAMP ▶OFF ON
BEEP SOUND▶OFF ON
DEMO MODE ▶OFF ON
RETURN ▶ ---- YES
PRESS MENU TO EXIT
㉒
㉓
㉔
㉕
㉖
㉗
㉘
㉙

Camera Mode Main-Menu [CAMERA FUNCTIONS] (Continued)

[OTHER FUNCTIONS] Sub-Menu ⑥

㉒ **Recording Speed Mode [REC SPEED] (→ 14)**

㉓ **Audio Recording Mode [AUDIO REC] (→ 63)**

㉔ **Wind Noise Reduction [WIND CUT]**
If you set [WIND CUT] to [ON], the noise of the wind hitting the microphone is reduced. However, this also causes a slight deterioration of the sound reproduction in the bass range.

㉕ **Scene Index Mode [SCENEINDEX] (→ 35)**

㉖ **Remote Controller Mode [REMOTE] (→ 79)**

㉗ **Recording Lamp [REC LAMP] (→ 17)**

㉘ **Beep Sound [BEEP SOUND]**
If you set [BEEP SOUND] to [ON], a confirmation/alarm beep sound is emitted in the following cases:
1 Beep
- When you start recording
- When you switch the [OFF/ON/MODE] Switch from [OFF] to [ON]

2 Beeps
- When you pause recording

10 Beeps
- When you operate the Movie Camera in an inappropriate way before or during recording

㉙ **Demonstration Mode [DEMO MODE]**
If you connect the AC Adaptor to the Movie Camera, set the [OFF/ON/MODE] Switch to [CAMERA] without any cassette inserted, and leave it on for approximately 10 minutes without performing any operation, the Movie Camera automatically switches over to the Demonstration Mode to show its functions.
Pressing a button or performing some other operation suspends the Demonstration Mode. Leaving the Movie Camera again on for more than 10 minutes without operating it, causes the demonstration to start again.
Also, when you set [DEMO MODE] to [ON] and then exit the menu, the demonstration starts.
To cancel the Demonstration Mode, insert a cassette or set [DEMO MODE] to [OFF].

VCR Mode Main-Menu [VCR FUNCTIONS]

1. **DIGITAL EFFECT**
2. **CARD SETUP**
3. **MULTI-PICTURES**
4. **DISPLAY SETUP**
5. **OTHER FUNCTIONS**

[DIGITAL EFFECT] Sub-Menu ①

❶ **Digital Effect Off/On [EFFECT] (→ 55)**

❷ **Digital Effect Selection [EFFECT SELECT] (→ 55)**

❸ **Returning to the VCR Mode Main-Menu [RETURN]**
If you set [RETURN] to [YES], the Menu changes back to the [VCR FUNCTIONS] Main-Menu.

[CARD SETUP] Sub-Menu ②

❹ **Picture Quality [PICTURE QUALITY] (→ 67)**

[MULTI-PICTURES] Sub-Menu ③

❺ **Multi-Picture Mode [SCAN MODE] (→ 56, 57, 58)**

❻ **Strobe Multi-Picture Speed [SPEED] (→ 56)**

❼ **Swing Mode [SWING] (→ 56)**

[DISPLAY SETUP] Sub-Menu ④
All items on the [DISPLAY SETUP] Sub-Menu are the same as those on the [DISPLAY SETUP] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu. **(→ 96)**

[OTHER FUNCTIONS] Sub-Menu ⑤

❽ **Index Search Mode [SEARCH] (→ 35, 36, 37)**

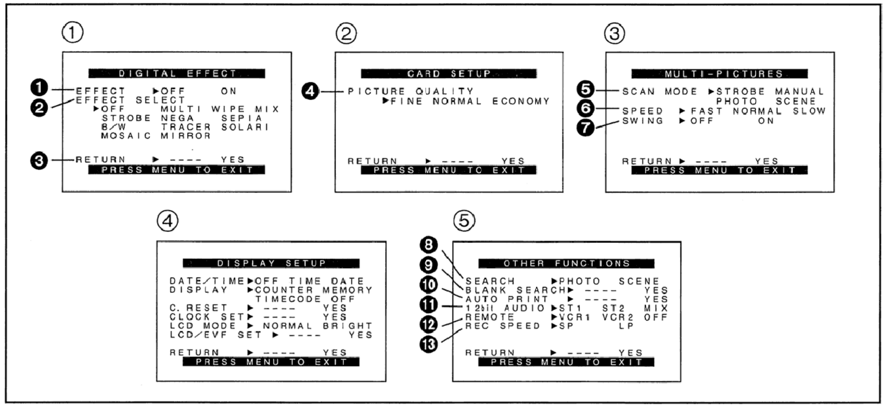
❾ **Blank Search [BLANK SEARCH] (→ 34)**

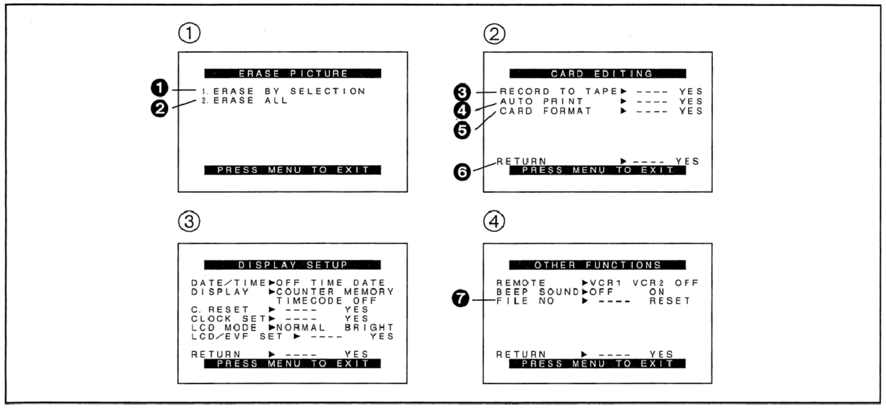
❿ **Automatic Printing [AUTO PRINT] (→ 85)**

⓫ **Audio Output Mode [12bit AUDIO] (→ 64)**

⓬ **Remote Controller Mode [REMOTE] (→ 79)**

⓭ **Recording Speed Mode [REC SPEED] (→ 81)**


①
DIGITAL EFFECT
EFFECT ▶OFF ON
EFFECT SELECT
▶OFF MULTI WIPE MIX
STROBE NEGA SEPIA
B/W TRACER SOLARI
MOSAIC MIRROR
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❶
❷
❸
②
CARD SETUP
PICTURE QUALITY
▶FINE NORMAL ECONOMY
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❹
③
MULTI-PICTURES
SCAN MODE ▶STROBE MANUAL
PHOTO SCENE
SPEED ▶FAST NORMAL SLOW
SWING ▶OFF ON
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❺
❻
❼
④
DISPLAY SETUP
DATE/TIME▶OFF TIME DATE
DISPLAY ▶COUNTER MEMORY
TIMECODE OFF
C. RESET ▶ ---- YES
CLOCK SET▶ ---- YES
LCD MODE ▶ NORMAL BRIGHT
LCD/EVF SET ▶ ---- YES
RETURN ▶ ---- YES
PRESS MENU TO EXIT
⑤
OTHER FUNCTIONS
SEARCH ▶PHOTO SCENE
BLANK SEARCH▶ ---- YES
AUTO PRINT ▶ ---- YES
12bit AUDIO ▶ST1 ST2 MIX
REMOTE ▶VCR1 VCR2 OFF
REC SPEED ▶SP LP
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❽
❾
❿
⓫
⓬
⓭


①
ERASE PICTURE
1. ERASE BY SELECTION
2. ERASE ALL
PRESS MENU TO EXIT
❶
❷
②
CARD EDITING
RECORD TO TAPE▶ ---- YES
AUTO PRINT ▶ ---- YES
CARD FORMAT ▶ ---- YES
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❸
❹
❺
❻
③
DISPLAY SETUP
DATE/TIME▶OFF TIME DATE
DISPLAY ▶COUNTER MEMORY
TIMECODE OFF
C. RESET ▶ ---- YES
CLOCK SET▶ ---- YES
LCD MODE ▶NORMAL BRIGHT
LCD/EVF SET ▶ ---- YES
RETURN ▶ ---- YES
PRESS MENU TO EXIT
④
OTHER FUNCTIONS
REMOTE ▶VCR1 VCR2 OFF
BEEP SOUND▶OFF ON
FILE NO ▶ ---- RESET
RETURN ▶ ---- YES
PRESS MENU TO EXIT
❼

Card Playback Mode Main-Menu [CARD FUNCTIONS]

[ERASE PICTURE] Sub-Menu ①

❶ **Selecting and Erasing a Picture [ERASE BY SELECTION] (→ 70)**

❷ **Erasing All Pictures [ERASE ALL] (→ 70)**

[CARD EDITING] Sub-Menu ②

❸ **Recording to Cassette [RECORD TO TAPE] (→ 72)**

❹ **Automatic Printing [AUTO PRINT] (→ 85)**
If you connect the Movie Camera to the Digital Video Printer and set [AUTO PRINT] to [YES], all pictures stored on the MultiMediaCard are printed automatically.

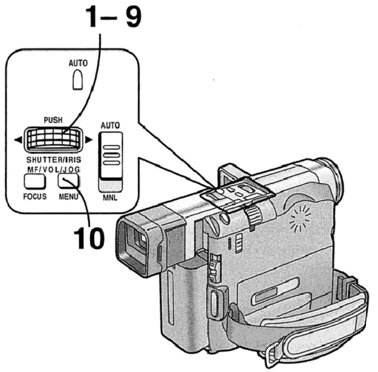
❺ **Formatting a MultiMediaCard [CARD FORMAT] (→ 71)**

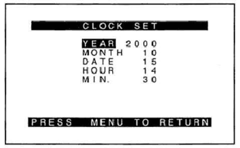
❻ **Returning to the Card Playback Mode Main-Menu [RETURN]**

[DISPLAY SETUP] Sub-Menu ③
All items on the [DISPLAY SETUP] Sub-Menu are the same as those on the [DISPLAY SETUP] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu. **(→ 96)**

[OTHER FUNCTIONS] Sub-Menu ④

❼ **File Number Reset [FILE NO] (→ 71)**
All items on the [OTHER FUNCTIONS] Sub-Menu are the same as those on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu. **(→ 97)**





```
     CLOCK SET

YEAR  2000
MONTH   10
DATE    15
HOUR    14
MIN.    30

PRESS MENU TO RETURN
```

Setting the Date and Time

If you set [CLOCK SET] on the [DISPLAY SETUP] Sub-Menu to [ON], the menu shown above appears.

For example: To set the clock to 15th October 2000, 14:30.

1 Turn the [PUSH] Dial to set to [2000].
The years change in the following order:
2000→2001→...→2089→2000→...

2 Press the [PUSH] Dial to select [MONTH].

3 Turn the [PUSH] Dial to set to [10].

4 Press the [PUSH] Dial to select [DATE].

5 Turn the [PUSH] Dial to set to [15].

6 Press the [PUSH] Dial to select [HOUR].

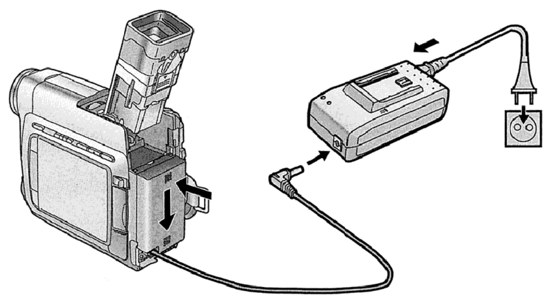
7 Turn the [PUSH] Dial to set to [14].

8 Press the [PUSH] Dial to select [MIN.].

9 Turn the [PUSH] Dial to set to [30].

10 Press the [MENU] Button to finish the date and time setting.
The operation of the clock starts from [00] seconds. Pressing the button one more time makes the Menu disappear.

- As the time of the Movie Camera's built-in clock is subject to a slight imprecision, be sure to check the time before recording. If the flashing [⊗] Indication appears, charge the built-in battery **(→ 101)** and set the date and time again.
- The clock employs the 24-hour system.

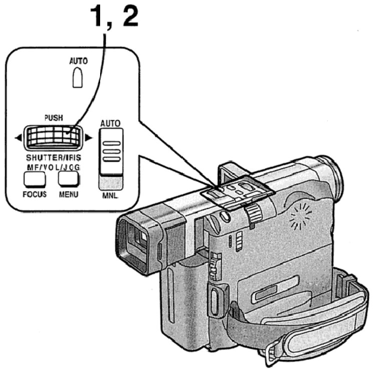


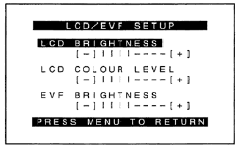
Charging the Built-in Lithium Battery
The built-in battery maintains the operation of the clock. When the [⊗] Indication appears, the built-in lithium battery is discharged. Charge the discharged battery in the following way and after charging is finished, set the date and time.

1 Connect the AC Adaptor to the Movie Camera and to an AC mains socket. (→ 10)

2 Leave the Movie Camera turned off.

3 Leave the Movie Camera in this condition for approximately 4 hours.
After charging for 4 hours, the built-in lithium battery can power the clock for approximately 3 months.





```
   LCD/EVF SETUP

LCD BRIGHTNESS
     [-]||||----[+]
LCD COLOUR LEVEL
     [-]||||----[+]
EVF BRIGHTNESS
     [-]||||----[+]
PRESS MENU TO RETURN
```

Adjusting the LCD Monitor/Finder

If you set [LCD/EVF SET] on the [DISPLAY SETUP] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu to [YES], the following items are displayed.

LCD Brightness [LCD BRIGHTNESS]
To adjust the brightness of the LCD screen. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the brighter is the screen.

LCD Colour Level [LCD COLOUR LEVEL]
To adjust the colour saturation of the LCD screen. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the stronger are the colours.

Finder Brightness [EVF BRIGHTNESS]
To adjust the brightness of the Finder. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the brighter is the screen.

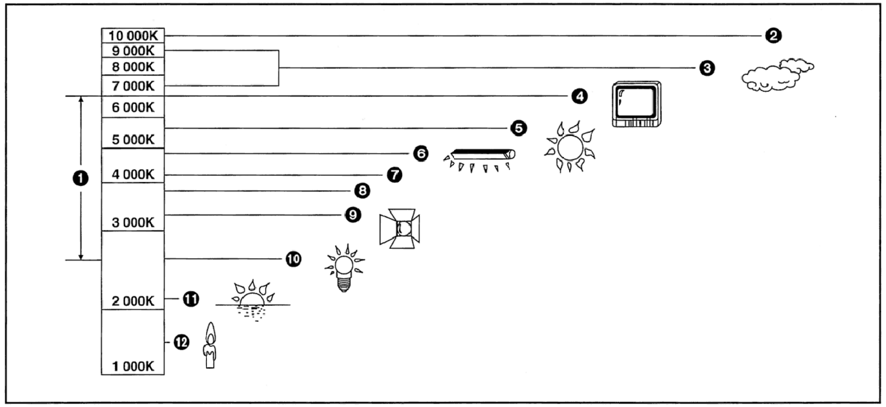
1 Press the [PUSH] Dial to select the item that you want to adjust.

2 Turn the [PUSH] Dial. Turning it increases or decreases the number of vertical bars of the Bar Indication.

If you use the Remote Controller for these adjustments, press the [ITEM] Button to select the item, and then press the [SET] Button to adjust it. Keeping the [SET] Button pressed changes the number of bars.

Increasing the Brightness of the Whole LCD Monitor Screen
Set [LCD MODE] on the [DISPLAY SETUP] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu to [BRIGHT].

- These adjustments have no influence on the actually recorded picture.



■ Colour Temperature

Every light source has its own colour temperature measured in Kelvin (K). The higher the Kelvin value, the more bluish the light; the lower the value, the more reddish the light. The Kelvin value is related to the tint of the light, but not directly to its brightness.
The range ① indicated in the illustration above shows the light sources for which this Movie Camera can provide precise white balance adjustment and, therefore, natural colours in the recorded pictures, when using the Full Auto Mode. For light sources outside this range, adjust the white balance manually (→ 51). Also, additional lighting may be necessary.

① Control range of this Movie Camera's Auto White Balance Adjustment Mode

② Blue sky

③ Cloudy sky (Rain)

④ TV screen

⑤ Sunlight

⑥ White flucrescent lamp

⑦ 2 hours after sunrise or before sunset

⑧ 1 hour after sunrise or before sunset

⑨ Halogen light bulb

⑩ Incandescent light bulb

⑪ Sunrise or sunset

⑫ Candlelight

■ Progressive Photoshot Function

This function lets you record still pictures with higher resolution, finer details and smoother image contours than the normal Photoshot Function.

- Usually, still pictures recorded with single-CCD Movie Cameras are field still pictures, whose vertical resolution is approximately half of that of frame still pictures, and picture details are not very precise. (1 frame consists of 2 fields.)
- When recording moving objects, there is a slight difference between two fields. If these field still pictures are recorded as a frame still picture, it will have broken up image contours.
- To record still pictures with smooth contours in excellent picture quality, this Movie Camera is equipped with the Progressive Photoshot Mode featuring:
    an iris that closes like a shutter
    2 field memories

Actual operation:
- Pressing the [PHOTO SHOT] Button
- Closing the iris instantaneously to prevent the next image from entering through the lens
- Storing the same picture data in 2 field memories

As a result, the recorded frame is made up of two fields taken at exactly the same time, and the resolution is approximately 50% higher to ensure a picture with smooth contours.

Notes about the Progressive Photoshot Function

Pressing the [PHOTO SHOT] Button in the Progressive Photoshot Mode records a frame still picture.
However, when [PROGRESSIVE] on the [CAMERA SETUP] Sub-Menu is set to [ON], the following functions cannot be used:
- Digital Zoom
- Digital Effect Mode in [EFFECT1]
- Shutter speeds of 1/750 s or faster
- Continuous Photoshot (Also not possible when [PROGRESSIVE] is set to [AUTO].)

As still pictures recorded in the Progressive Photoshot Mode are extremely sharp and brilliant, they are highly suitable for printing on a Video Printer and for importing into a computer.

When you press the [PHOTO SHOT] Button in the Progressive Photoshot Mode, a click sound can be heard. This is caused by the closing of the iris and is not an indication of malfunction.

- During normal recording, the Progressive Photoshot Funciton cannot be used.

■ Time Code

Time Code signals are the data which indicates the time in hours, minutes, seconds and frames (25 frames/sec). Having this data included in the recording gives every single picture on the tape its own address.

- The Time Code is automatically recorded as part of the sub code with every recording you make.
- When you insert a new (previously unrecorded) cassette, the Time Code automatically starts from zero. If you insert a recorded cassette, the Time Code continues where the time code of the last previous scene stopped. (In this case, the zero indication [0h00m00s00f] may appear after inserting the cassette, but when the recording starts, the Time Code records from the previous value.)
- You cannot reset the Time Code to zero.
- In playback modes other than the Normal Playback Mode, the Time Code may not be displayed (or not be correct).
- Unless the Time Code is recorded continuously from the beginning of the tape, precise editing may not be possible. To ensure that the Time Code is recorded without interruption, we recommend that you use the Camera Search Function (→ 33) or Blank Search Function (→ 34) before starting to record a new scene.

■ Memory Stop Function

The Memory Stop Function is convenient for the following operations.

Rewinding or fast-forwarding the tape to a desired position

1 **Reset the Tape Counter to zero at the tape position from which you want to play back later.** (→ 96)

2 **Set [DISPLAY] on the [DISPLAY SETUP] Sub-Menu to [MEMORY].**

3 **Start playback or recording.**

4 After playback or recording is finished:
Slide the [OFF/ON/MODE] Switch from the [ON] position to put the Movie Camera in the VCR Mode.

5 **Rewind the tape.**
The tape automatically stops approximately at the position at which you reset the counter to zero.

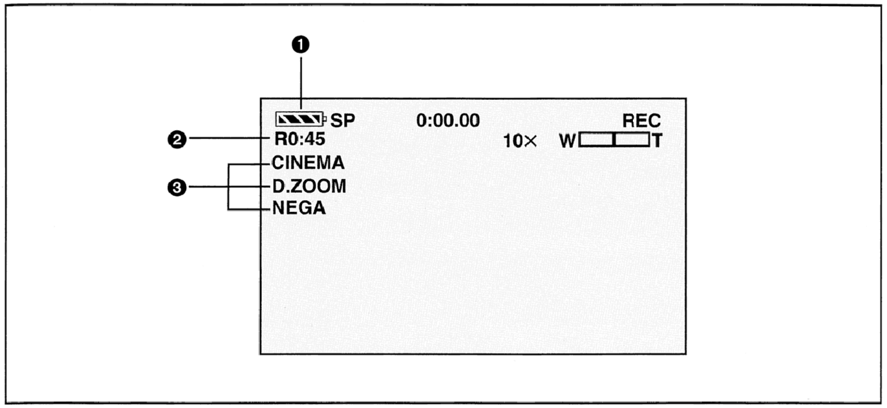
Stopping the editing automatically in audio dubbing

1 **Reset the Tape Counter to zero at the tape position at which you want the editing to stop.**

2 **Set [DISPLAY] on the [DISPLAY SETUP] Sub-Menu to [MEMORY].**

3 **Play back a still picture at the point at which you want the audio dubbing to start.**

4 **Start the audio dubbing.** (→ 63)
The audio dubbing automatically stops approximately at the position at which you reset the counter to zero.



Indications on the LCD Monitor/in the Finder

① Remaining Battery Power
As the remaining battery power decreases, the indication changes as follows:
▰▰▰→▰▰→▰→▱→▭
When the battery is completely discharged, the ▱ (▭) Indication flashes.
(When you are using the AC Adaptor, the ▰▰▰ Indication may appear, however, this has no meaning in this case.)

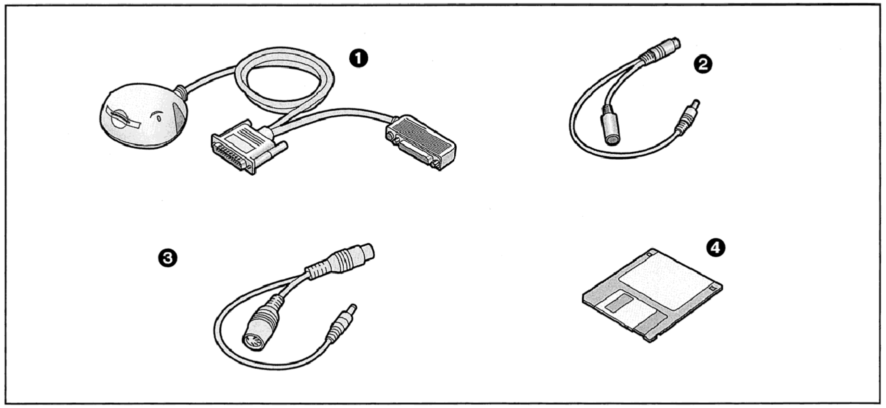
② Remaining Tape Time
The remaining tape time is displayed in minutes. (When it becomes less than 3 minutes, the indication starts to flash.)
- If a recording lasts less than 15 seconds, the remaining tape time cannot be displayed correctly.
- The displayed remaining tape time may be shorter than the actual remaining tape time.

③ Cinema Mode (→ 25)
When recording in the Cinema Mode, this indication is displayed.

Digital Zoom (→ 21)
When the Digital Zoom Function is activated, this indication is displayed.

Playback Zoom (→ 62)
When the Playback Zoom Function is activated, this indication and the zoom magnification are displayed.

Digital Effects (→ 41, 42)
When a digital effect is activated, the corresponding indication is displayed.



Using the MultiMediaCard External Drive

Using the supplied MultiMediaCard External Drive lets you import the still pictures recorded on the MultiMediaCard with ease into a computer.

Supplied Accessories

Hardware

❶ MultiMediaCard External Drive

❷ PS/2 Y-Lead Power Adaptor

❸ AT Y-Lead Power Adaptor

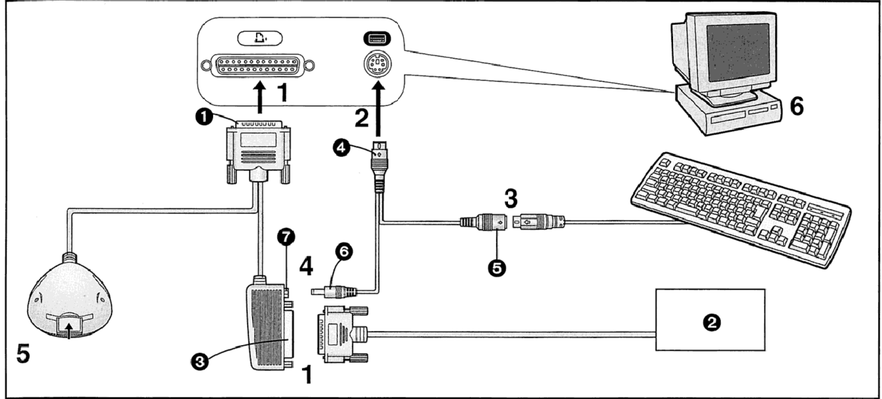
Software

❹ MultiMediaCard External Drive Programme Disk

Computer System Requirements

Personal Computer:	PC/AT compatible personal computer which can run Microsoft® Windows® 95/98 and are equipped with a parallel type printer port and a PS/2 or AT type keyboard connector
Installed memory:	16 MB or more (32 MB or more recommended)
Free Hard Disk Space:	At least 1.5 MB
Disk Drive:	Floppy Disk Drive
Parallel Port:	D-sub 25-pin
Other Requirements:	Mouse

- If, instead of a printer, you connect some other equipment to the parallel port of the MultiMediaCard External Drive, it may not work. Also, when you disconnect the MultiMediaCard External Drive after use from the computer's parallel port and then connect some other equipment instead, it may not work.
- If you connect the MultiMediaCard External Drive to a computer to which other equipment is connected via SCSI connection, it may not be possible to use both units at the same time. To be able to use the MultiMediaCard External Drive in such a case, turn off the equipment connected via SCSI cable or disconnect the SCSI cable.



Connecting the MultiMediaCard External Drive to the Computer

- Before making any connections, shut down the computer and turn it off. Otherwise, the MultiMediaCard External Drive or the computer could be damaged.
- Disconnect the keyboard from the computer.
  (If the keyboard is connected to the computer via USB cable, it is not necessary to disconnect it.)
- Disconnect the printer cable if it is connected to the computer's parallel printer port.
- Select the Y-Lead Power Adaptor that is compatible with the computer's keyboard connector.
  (Recent PC-type computers generally use the PS/2-type keyboard connector.)

1 Plug the Parallel Port Connector ❶ of the MultiMediaCard External Drive into the computer's parallel printer port.
If you also want to connect the printer ❷, connect the printer cable to the Pass-Through Connector ❸. This allows printing even during use of the MultiMediaCard External Drive.

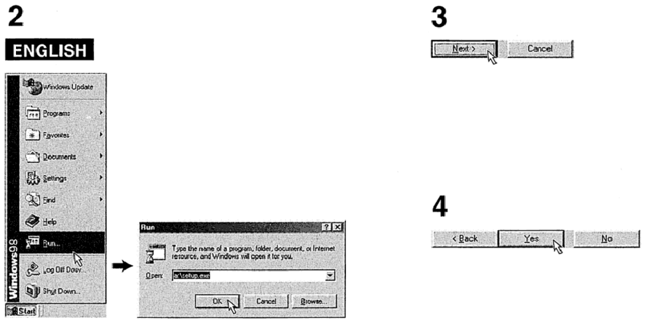
2 Connect the plug ❹ of the Y-Lead Power Adaptor to the keyboard connector on the computer.

3 Connect the keyboard to the socket ❺ of the Y-Lead Power Adaptor.
(If the keyboard is connected to the computer via USB cable, this connection is not necessary.)

4 Connect the Power Plug ❻ of the Y-Lead Power Adaptor to the Power Input Socket ❼ on the Pass-Through Printer Connector of the MultiMediaCard External Drive.
Check that all connections have been made correctly and securely.

5 Insert the MultiMediaCard with its label facing upward. (→ 131)

6 Turn the computer on.



Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.

Open: a:\setup.exe

Installing the Software of the MultiMediaCard External Drive

Terminate all programmes that are running.
Also disable resident applications such as virus checker and screen saver programmes.
The illustrations of the following on screen display are intended or explaining the functions: the actual memus may look somewhat different.

1 Insert the MultiMediaCard External Drive Programme Disk into the floppy disk drive.

2 In the [Run] window, type [A:\Setup.exe]. Click [OK].

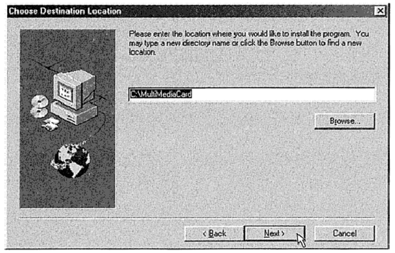
Starting the Installation with the Installation Wizard

3 When the [Welcome] window appears, click [Next].
The [Software License Agreement] window appears.

4 Read the Software License Agreement and click [Yes] if you consent to its contents.
For the License Agreement in other languages than English, see the enclosed sheet.
The [Choose Destination Location] window appears.

Continued on next page.

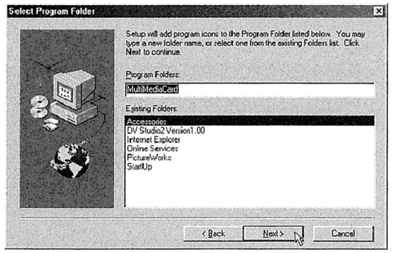
5


Choose Destination Location

Please enter the location where you would like to install the program. You may type a new directory name or click the Browse button to find a new location.

C:\MultiMediaCard

6


Select Program Folder

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.

Program Folders:
MultiMediaCard

Existing Folders:
Accessories
DV Studio2 Version1.00
Internet Explorer
Online Services
PictureWorks
StartUp

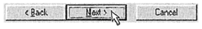
Installing the Software of the MultiMediaCard External Drive (Continued)

5 Designate the letter of the drive and folder name where you want to install the programme, and then click [Next].
The default folder name is [C:\MultiMediaCard].
If you want to use a different folder name, type in a new name or click [Browse] to select a new folder name.
The [Select Program Folder] window appears.

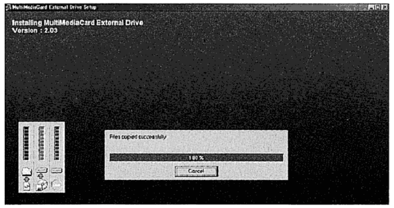
6 Click [Next]
The [Start Copying Files] window appears.
When the installation is completed, the [MultiMediaCard] folder is automatically added in the [Program] folder in the [Start] menu.

Continued on next page.

7



8

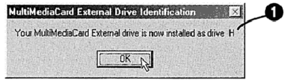

MultiMediaCard External Drive Setup

Installing MultiMediaCard External Drive
Version : 2.03

Files copied successfully

100 %

8, 9


MultiMediaCard External Drive Identification

Your MultiMediaCard External drive is now installed as drive H

Installing the Software of the MultiMediaCard External Drive (Continued)

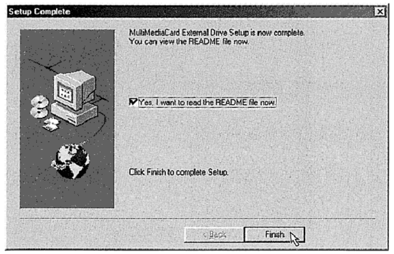
7 Confirm that the currently set contents are correct and then click [Next].
File copying starts.
If you want to change any of the selections, click [Back] and make the changes before clicking [Next].

8 After all files have been copied, the message ❶ above appears.
While the MultiMediaCard External Drive is being detected, all operations on the computer seem to stop for up to 8 seconds.
The letter of the drive which was allotted to the MultiMediaCard External Drive is displayed.

9 Click [OK].
The [Setup Complete] window appears.

Continued on next page.

10

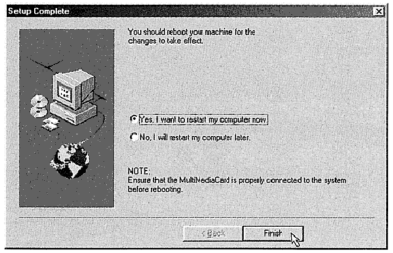

Setup Complete

MultiMediaCard External Drive Setup is now complete.
You can view the README file now.

☑ Yes, I want to read the README file now.

Click Finish to complete Setup.

11


Setup Complete

You should reboot your machine for the changes to take effect.

● Yes, I want to restart my computer now.
○ No, I will restart my computer later.

NOTE:
Ensure that the MultiMediaCard is properly connected to the system before rebooting.

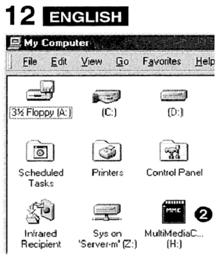
Installing the Software of the MultiMediaCard External Drive (Continued)

10 Click [Finish] to complete the setup.
The [Readme] file is displayed. (If you want to read the [Readme] file later, uncheck the [Yes. I want to read the README file now.] box before clicking [Finish].)
After reading the [Readme] file, close it.
Setting up has been completed.
Eject the programme disk.

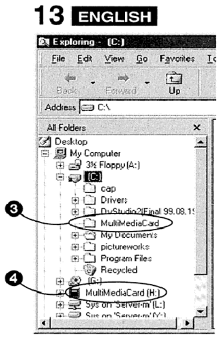
11 Click [Finish] and reboot the computer so that the newly installed software can be used.

Continued on next page.

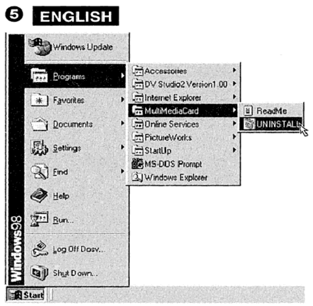
12


ENGLISH
My Computer
File Edit View Go Favorites Help
3½ Floppy (A:)
(C:)
(D:)
Scheduled Tasks
Printers
Control Panel
Infrared Recipient
Sys on 'Server-m' (Z:)
MultiMediaC... (H:)
❷

13


ENGLISH
Exploring - (C:)
File Edit View Go Favorites
Back Forward Up
Address C:\
All Folders
Desktop
My Computer
3½ Floppy (A:)
(C:)
cap
Drivers
MultiMediaCard
My Documents
pictureworks
Program Files
Recycled
MultiMediaCard (H:)
Sys on 'Server-m' (L:)
❸
❹

❺


ENGLISH
Windows Update
Programs
Favorites
Documents
Settings
Find
Help
Run...
Log Off Dosv...
Shut Down...
Windows98
Start
Accessories
DV Studio2 Version1.00
Internet Explorer
MultiMediaCard
Online Services
PictureWorks
StartUp
MS-DOS Prompt
Windows Explorer
ReadMe
UNINSTALL

Installing the Software of the MultiMediaCard External Drive (Continued)

12 Open the [My Computer] folder.

When the MultiMediaCard is loaded, the MultiMediaCard External Drive is displayed by the icon ❷.

If you double-click this icon, the image folder (example; Im01cdpf) is displayed.

13 Open [Windows Explorer].

The MultiMediaCard is displayed as shown ❸.

❸ is the programme folder of the MultiMediaCard External Drive.

❹ is same as ❷ in the [My Computer] folder.

- **Uninstalling the Software of the MultiMediaCard External Drive**

  Select [Start/Programs/MultiMediaCard/UNINSTALL] ❺.

  Click [UNINSTALL].

MultiMediaCard External Drive

After installing the programme software and then rebooting the computer, the MultiMedia External Drive turns on and its Power Lamp ① lights in green and the Access Lamp ② flashes in amber. When you insert the MultiMediaCard into the MultiMediaCard External Drive and when it is being read, the Access Lamp flashes rapidly.

Inserting the MultiMediaCard into the MultiMediaCard External Drive

Hold the MultiMediaCard with its label facing upward and the cut-off corner to the right, and insert it into the MultiMediaCard Slot at a slightly downward angle.

A beep sound is heard and the Removable Disk icon ③ appears in the [Exploring] or [My Computer] window.

When you remove the MultiMediaCard from the MultiMediaCard External Drive, a beep sound is heard again, and the Removable Disk icon disappears from the [Exploring] or [My Computer] window.

- Do not remove the MultiMediaCard while it is being read.
- Be sure to insert the MultiMediaCard all the way into the MultiMediaCard External Drive until it stops.
- Do not subject the MultiMediaCard External Drive to shocks.
- Do not insert any objects except MultiMediaCards; otherwise it could damage the MultiMediaCard External Drive and the connected equipment.

Operations on the Computer

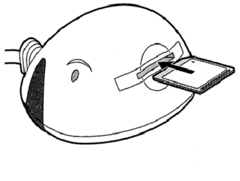
When the MultiMediaCard is inserted, the MultiMediaCard External Drive operates like a floppy disk drive, and you can use the same drag and drop or copy methods.

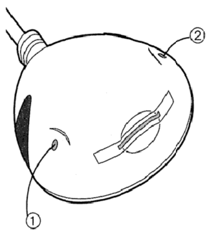
Image Data on the MultiMediaCard

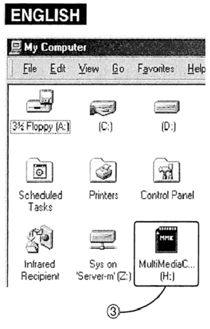
If you double-click on the Removable Disk icon ③, a folder is displayed. (Example: Im01cdpf)

The image data contained in the folder is recorded in the JPEG format. (Example: Img0001.jpg)

- If you change the file name, it is no longer possible to play back the corresponding picture(s) on the Movie Camera.
- Pictures that you have edited or composed on a computer can be saved on the MultiMediaCard, however, they can no longer be played back on the Movie Camera.






ENGLISH
My Computer
File Edit View Go Favorites Help
3½ Floppy (A:)
(C:)
(D:)
Scheduled Tasks
Printers
Control Panel
Infrared Recipient
Sys on 'Server-m' (Z:)
MultiMediaC... (H:)
③

Before Requesting Service (Problems & Solutions)

Power Supply

P1: The Movie Camera does not turn on.

S1: Is the Battery or the AC Adaptor connected correctly? Confirm the connection. **(→ 10)**

P2: The Movie Camera has turned off automatically.

S2: If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve battery power. **(→ 17)**

P3: The Movie Camera quickly turns off.

S3-1: Is the Battery discharged? When the Remaining Battery Power Indication is flashing or the [▭] Indication is displayed, the Battery is discharged. Charge the Battery or attach a fully charged Battery. **(→ 11, 117)**

S3-2: Has condensation formed? If the Movie Camera is brought from a cold to a warm place, condensation may form inside. In this case, the Movie Camera automatically switches off and no operation can be performed except taking out the cassette. Wait until the Condensation Indication disappears. **(→ 105)**

Battery

P1: The Battery discharges quickly.

S1-1: Is the Battery fully charged? Charge it with the AC Adaptor. **(→ 11)**

S1-2: Are you using the Battery in a place where the temperature is very low? The ambient temperature greatly influences the Battery's performance. Its operation time becomes shorter in a cold place. **(→ 108)**

S1-3: Has the Battery reached the end of its service life? The service life of the Battery is limited. It depends on the way the Battery is used, but when the operation time even after proper charging is too short for normal use, the service life of the Battery has reached its end.

P2: The Battery cannot be charged.

S2: If the DC Input Lead is connected to the AC Adaptor, charging is not possible. Disconnect the DC Input Lead.

8 ADJUSTMENT PROCEDURES

TOP PREVIOUS NEXT

8.1 DISASSEMBLE FLOW CHART
8.2 DISASSEMBLY PROCEDURES
8.3 DISASSEMBLY PROCEDURES OF CAMERA LENS UNIT

•@

TOP PREVIOUS NEXT

8.1 DISASSEMBLE FLOW CHART

TOP PREVIOUS NEXT

This flow chart indicates the disassembly steps the cabinet parts, C.B.A. and Mecha. Unit in order to access to be serviced. When reinstalling, perform the steps in the reverse order.

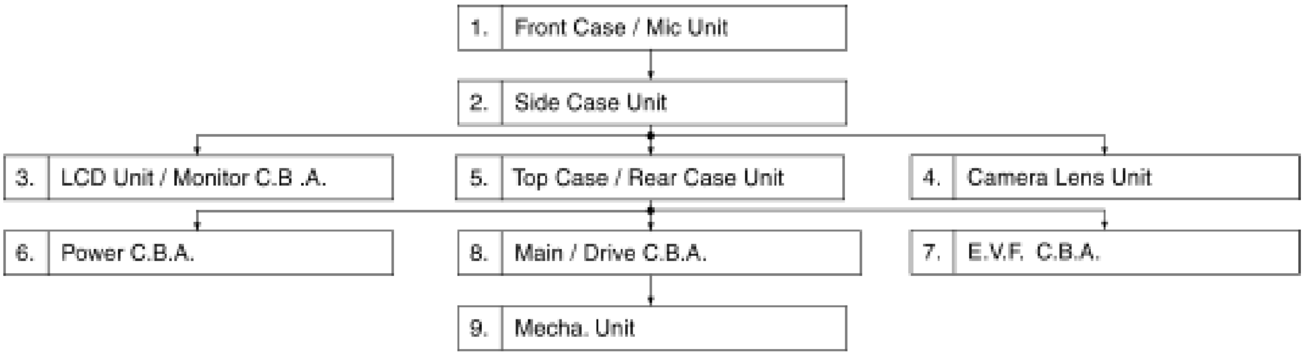
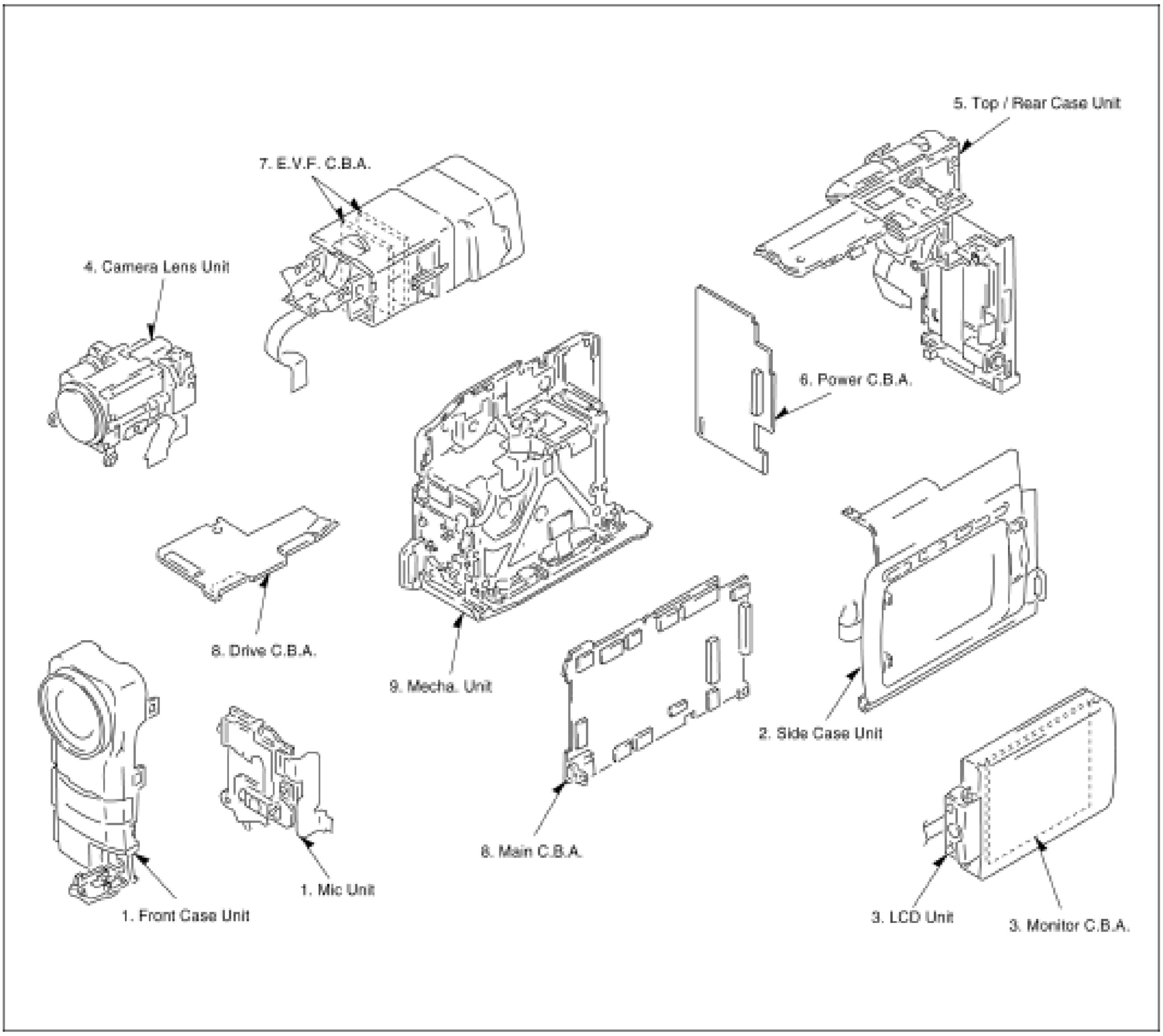

1. Front Case / Mic Unit
2. Side Case Unit
3. LCD Unit / Monitor C.B .A.
5. Top Case / Rear Case Unit
4. Camera Lens Unit
6. Power C.B.A.
8. Main / Drive C.B.A.
7. E.V.F. C.B.A.
9. Mecha. Unit

Fig. 1


5. Top / Rear Case Unit
7. E.V.F. C.B.A.
4. Camera Lens Unit
6. Power C.B.A.
8. Drive C.B.A.
9. Mecha. Unit
2. Side Case Unit
8. Main C.B.A.
1. Mic Unit
1. Front Case Unit
3. LCD Unit
3. Monitor C.B.A.

•@

TOP PREVIOUS NEXT

8.2 DISASSEMBLY PROCEDURES

TOP PREVIOUS NEXT

Flow-Chart for Disassembly Procedure

No.	Item/Part	Fig.	Removal (Screw& Other)
1.	Front Case Unit& Mic Unit	Fig. 1	Remove the MMC.
		Fig. 2	4-Screws (A/B) Remove the Front Case Unit. 1-Screw (C) Disconnect FP4801/P4201. Remove the Mic Unit.
2.	Side Case Unit	Fig. 3	7-Screws (D/E/F) Unlock (a) Disconnect FP601/FP602/FP2206. Remove the Side Case Unit.
3.	LCD Unit/Monitor C.B.A.	Fig. 4-1	2-Screws (G) Unlock (b) Remove the LCD Hinge Cover. 2-Screws (H) Remove the LCD Hinge Cover.
		Fig. 4-2	4-Screws (I) Unlocks (c) Remove the LCD Case (Upper) Unit. 1-Screw (J) Un-solder------2 Point Disconnect the following connectors. FP901/FP903/FP904/FP905. Removethe Monitor C.B.A. Remove the Hall Sensor Flex. Card.
4.	Camera Lens Unit	Fig. 5	2-Screws (K) Disconnect FP701/PS201. Remove the Camera Lens Unit.
5.	Top/Rear Case Unit	Fig. 5	6-Screws (L/M/N/O/P) Disconnect the following connectors. FP603/FP2207/PP1001 Unlock (d) Remove the Top/Rear Case Unit.
6.	Power C.B.A.	Fig. 6	Disconnect the FP1001. Unlocks (e/f) Remove the Power C.B.A./Battery Catcher Unit from Top/Rear Case Unit. Disconnect the FP1002. Remove the Battery CatcherUnit.
7.	E.V.F. C.B.A.	Fig. 7	2-Screws (Q) Remove the EVF Unit from Top/Rear Case Unit. Remove the Window Cover. Remove the EVF Slide Case.
		Fig. 8	2-Screws (R) Remove the EVF Guide Piece. 2-Screws (S) Remove the EVF Hinge. Remove the EVF C.B.A.
8.	Main/Drive C.B.A.	Fig. 9	1-Screw (T) Disconnect the following connectors. FP2204/FP2205/FP3201/PP3002/PS2001/FP2201/FP2202/FP2203. Unlocks ---(g/h) Removethe Main C.B.A. Remove the Drive C.B.A.

9	Mecha. Unit	Fig. 10	Open the Cassette Cover (S). Unlock the lock Level for Cover. Open the Cassette Cover (C).
		Fig. 11	4-Screws (U/V) Remove the Mecha. Frame. Remove the Mecha. Unit.

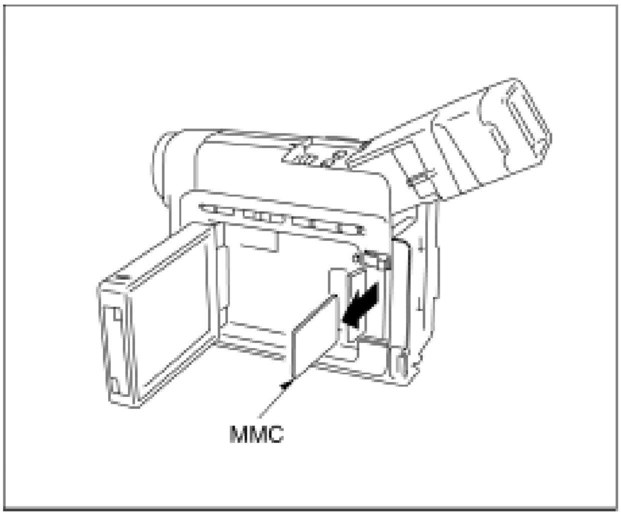


Fig. 2

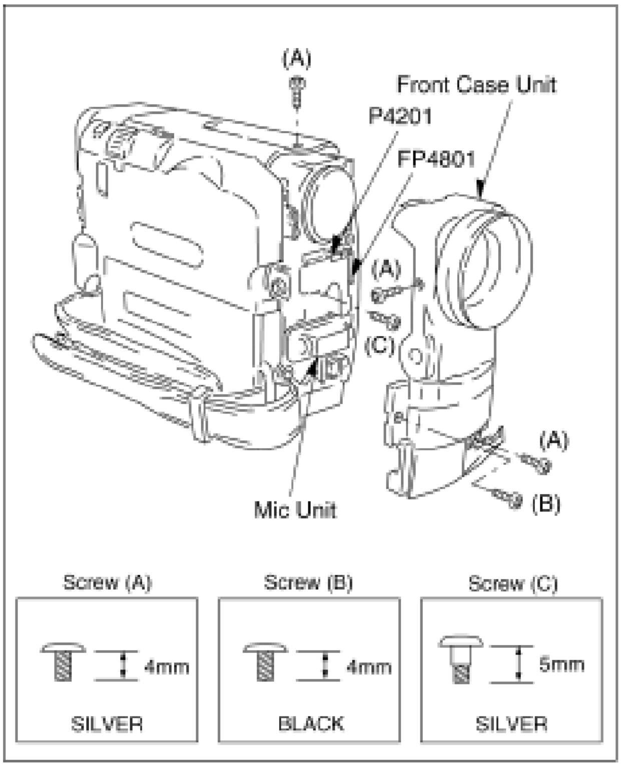

(A)
Front Case Unit
P4201
FP4801
(A)
(C)
(A)
(B)
Mic Unit
Screw (A)
4mm
SILVER
Screw (B)
4mm
BLACK
Screw (C)
5mm
SILVER

Fig. 3

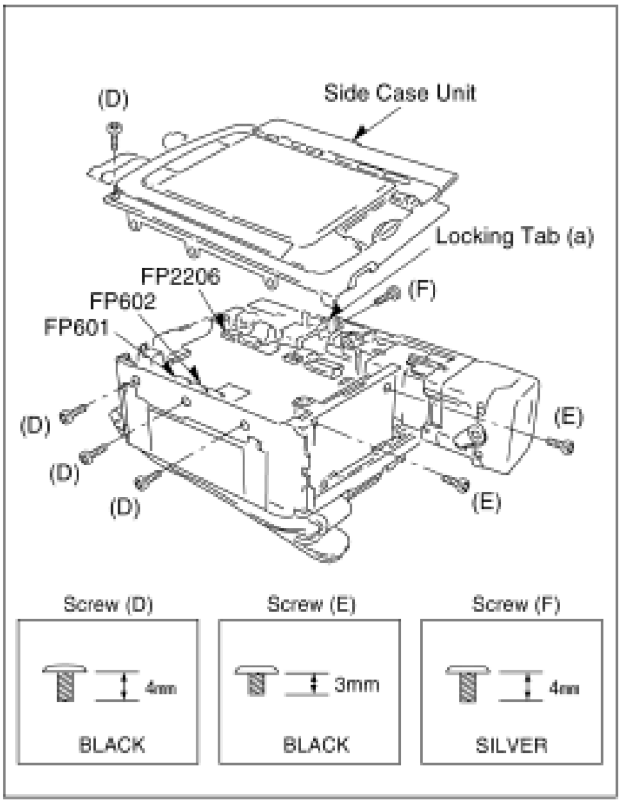

(D)
Side Case Unit
Locking Tab (a)
FP2206
FP602
FP601
(F)
(D)
(D)
(D)
(E)
(E)
Screw (D)
4mm
BLACK
Screw (E)
3mm
BLACK
Screw (F)
4mm
SILVER

Fig. 4-1

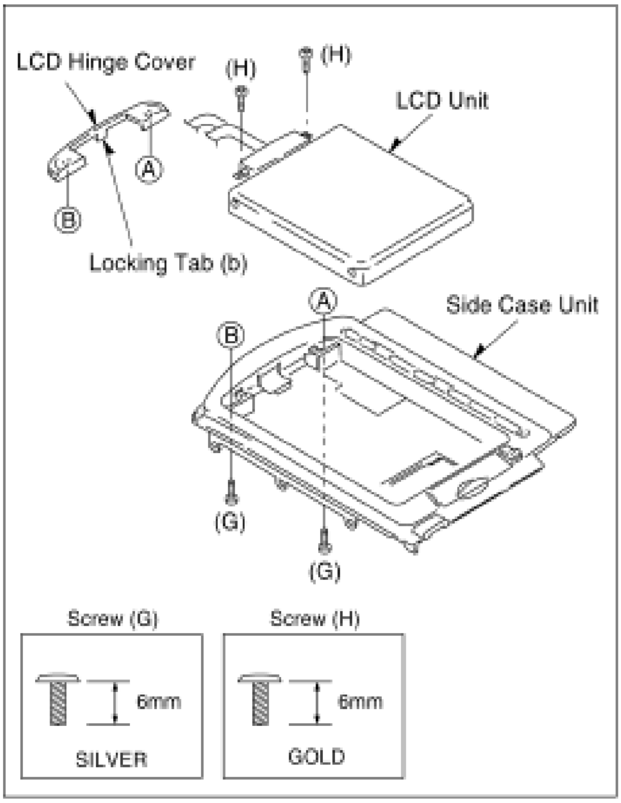

LCD Hinge Cover
(H)
(H)
LCD Unit
Ⓐ
Ⓑ
Locking Tab (b)
Ⓐ
Side Case Unit
Ⓑ
(G)
(G)
Screw (G)
6mm
SILVER
Screw (H)
6mm
GOLD

Fig. 4-2

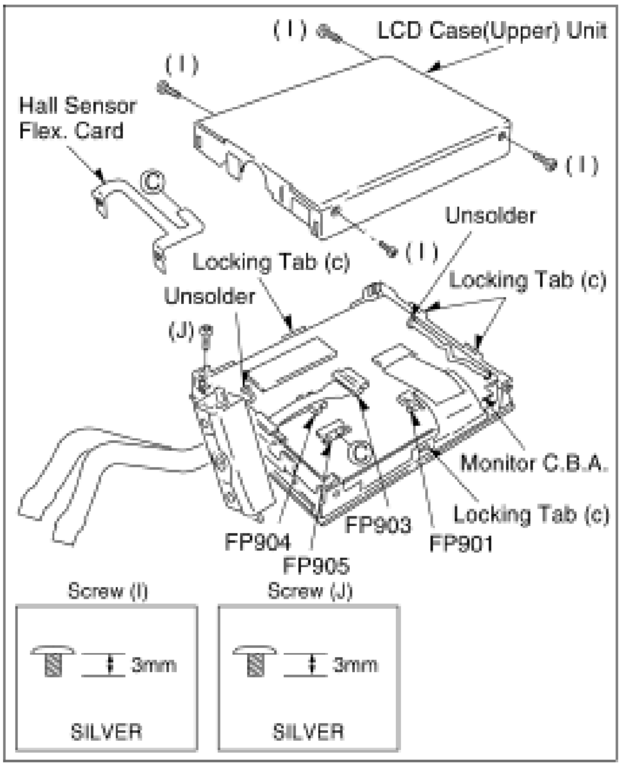

(I)
LCD Case(Upper) Unit
(I)
Hall Sensor
Flex. Card
C
(I)
Unsolder
(I)
Locking Tab (c)
Locking Tab (c)
Unsolder
(J)
C
Monitor C.B.A.
Locking Tab (c)
FP903
FP904
FP901
FP905
Screw (I)
3mm
SILVER
Screw (J)
3mm
SILVER

Fig. 5

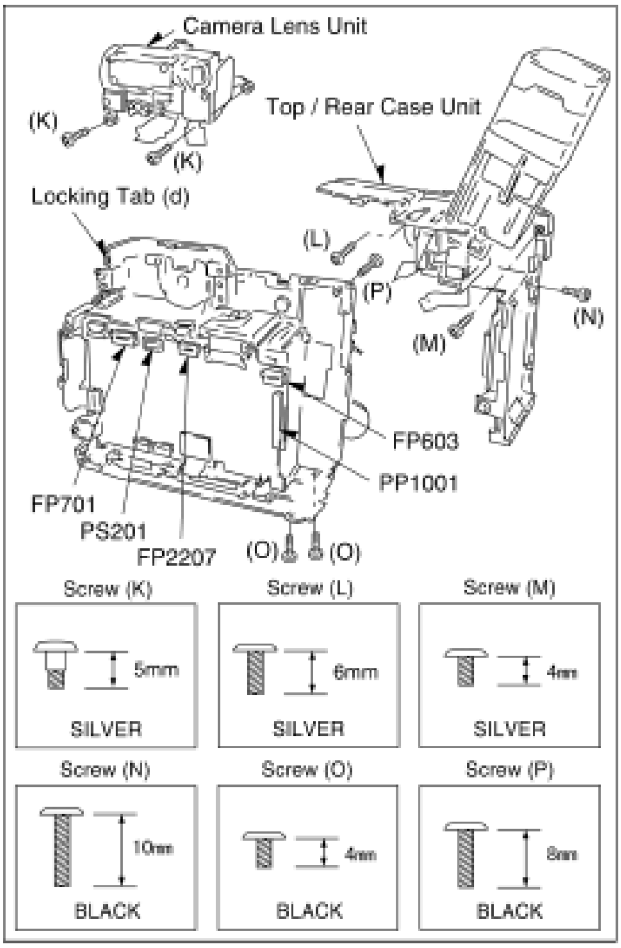

Camera Lens Unit
(K)
Top / Rear Case Unit
(K)
Locking Tab (d)
(L)
(P)
(N)
(M)
FP603
PP1001
FP701
PS201
FP2207
(O)
(O)
Screw (K)
5mm
SILVER
Screw (L)
6mm
SILVER
Screw (M)
4mm
SILVER
Screw (N)
10mm
BLACK
Screw (O)
4mm
BLACK
Screw (P)
8mm
BLACK

Fig. 6

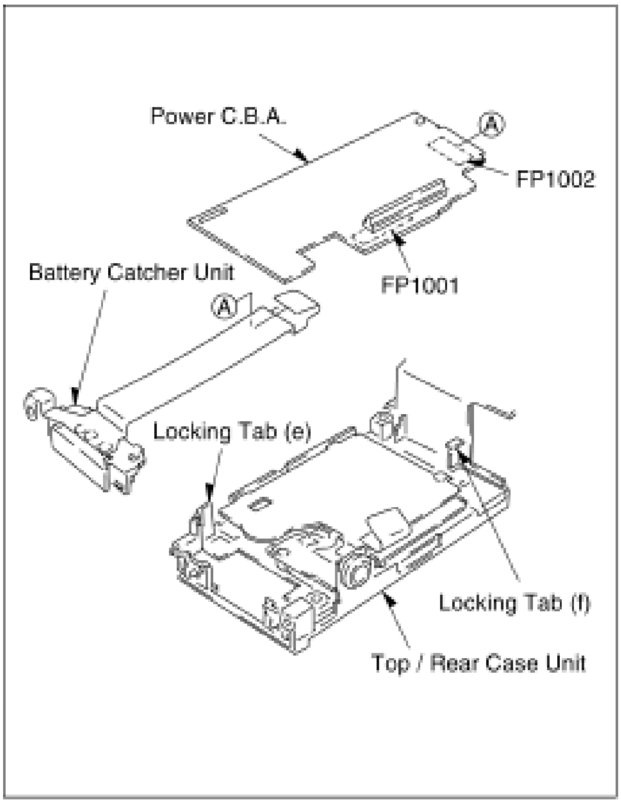

Power C.B.A.
Ⓐ
FP1002
FP1001
Battery Catcher Unit
Ⓐ
Locking Tab (e)
Locking Tab (f)
Top / Rear Case Unit

Fig. 7

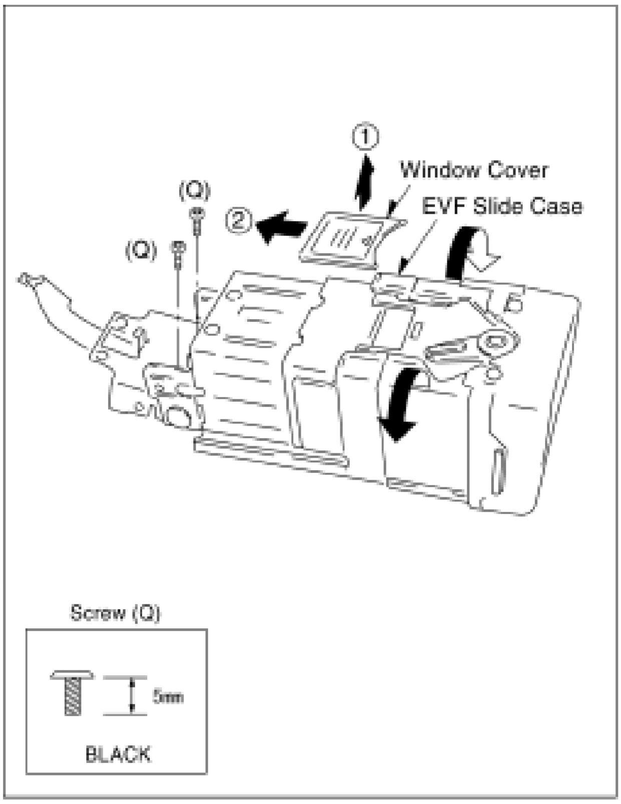

①
Window Cover
EVF Slide Case
(Q)
②
(Q)
Screw (Q)
5mm
BLACK

Fig. 8

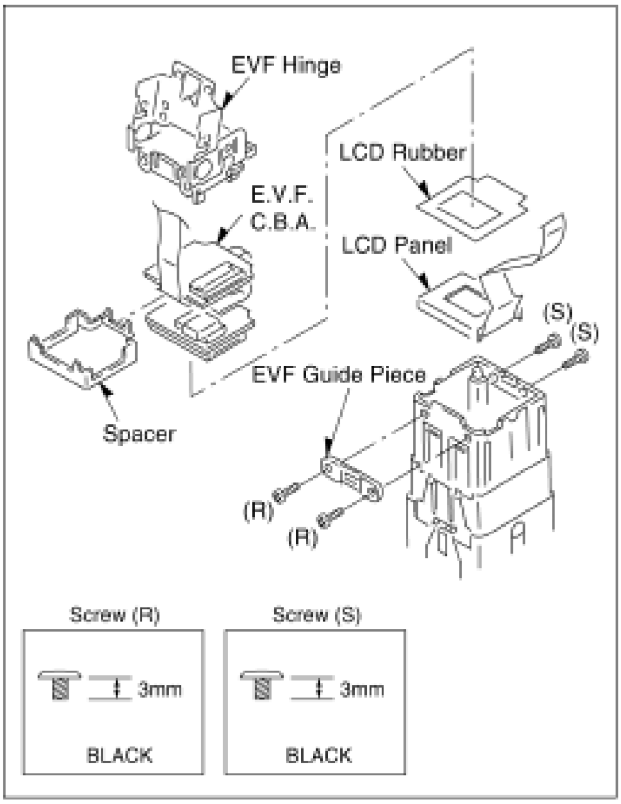

EVF Hinge
LCD Rubber
E.V.F.
C.B.A.
LCD Panel
(S)
(S)
EVF Guide Piece
Spacer
(R)
(R)
Screw (R)
3mm
BLACK
Screw (S)
3mm
BLACK

Fig. 9

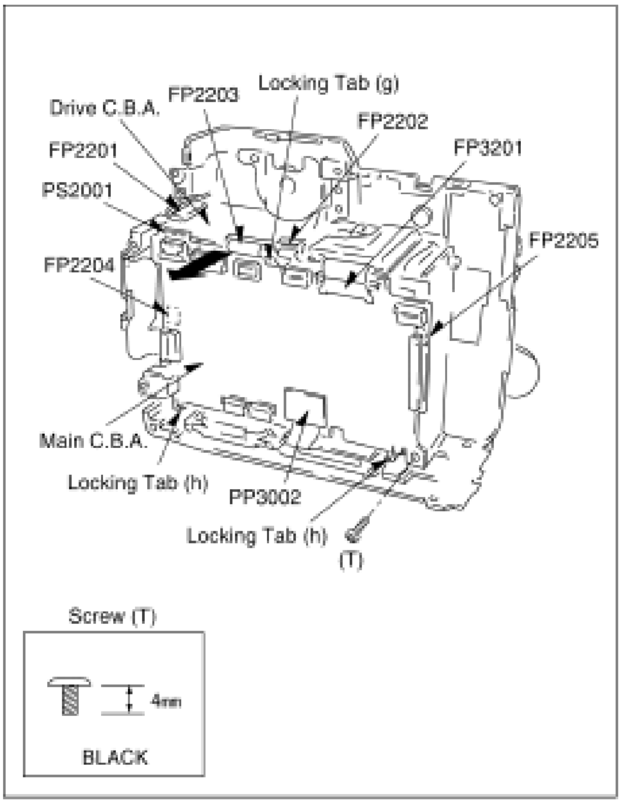

Locking Tab (g)
FP2203
Drive C.B.A.
FP2202
FP2201
FP3201
PS2001
FP2205
FP2204
Main C.B.A.
Locking Tab (h)
PP3002
Locking Tab (h)
(T)
Screw (T)
4mm
BLACK

Fig. 10

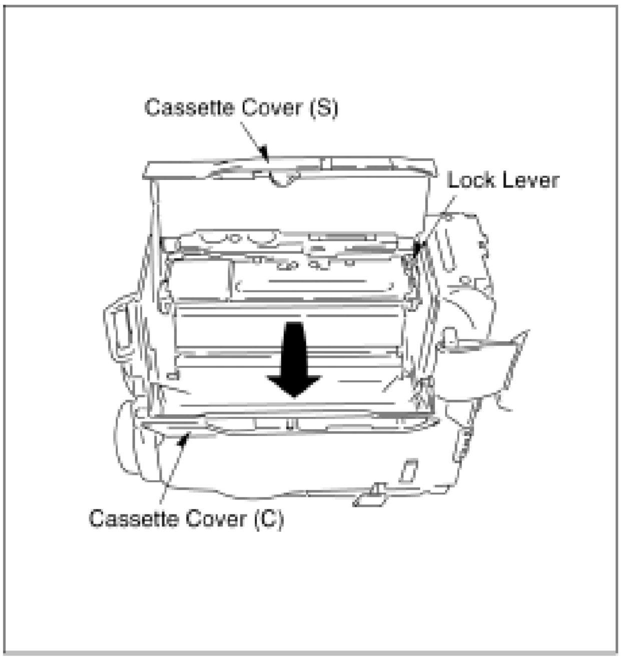
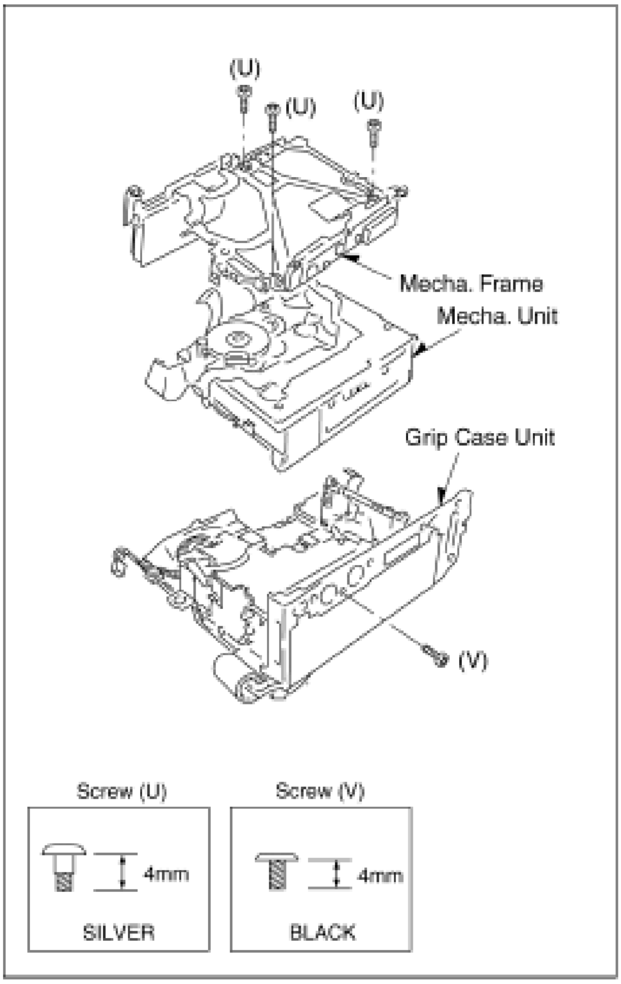

Cassette Cover (S)
Lock Lever
Cassette Cover (C)

Fig. 11


(U)
(U)
(U)
Mecha. Frame
Mecha. Unit
Grip Case Unit
(V)
Screw (U)
4mm
SILVER
Screw (V)
4mm
BLACK

•@

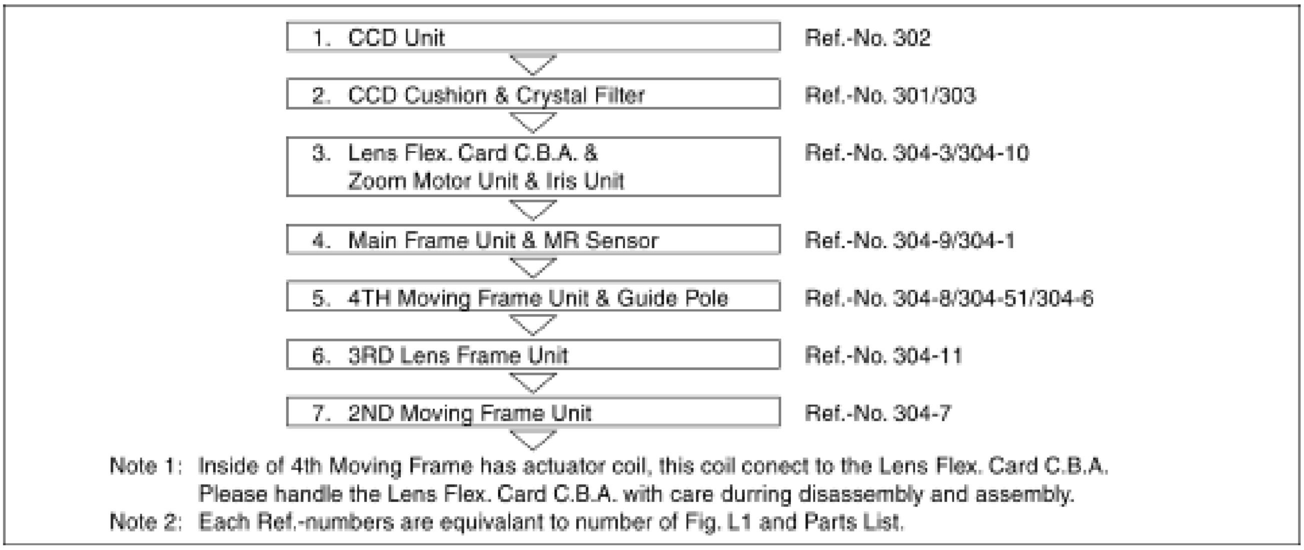
TOP PREVIOUS NEXT

8.3 DISASSEMBLY PROCEDURES OF CAMERA LENS UNIT

TOP PREVIOUS NEXT

The following flowchart describes order or steps for removing the Camera lens unit and certain printed circuit boards in order to make access to the item needing service./To reassemble the unit follow the steps in reverse order.

Fig. L1

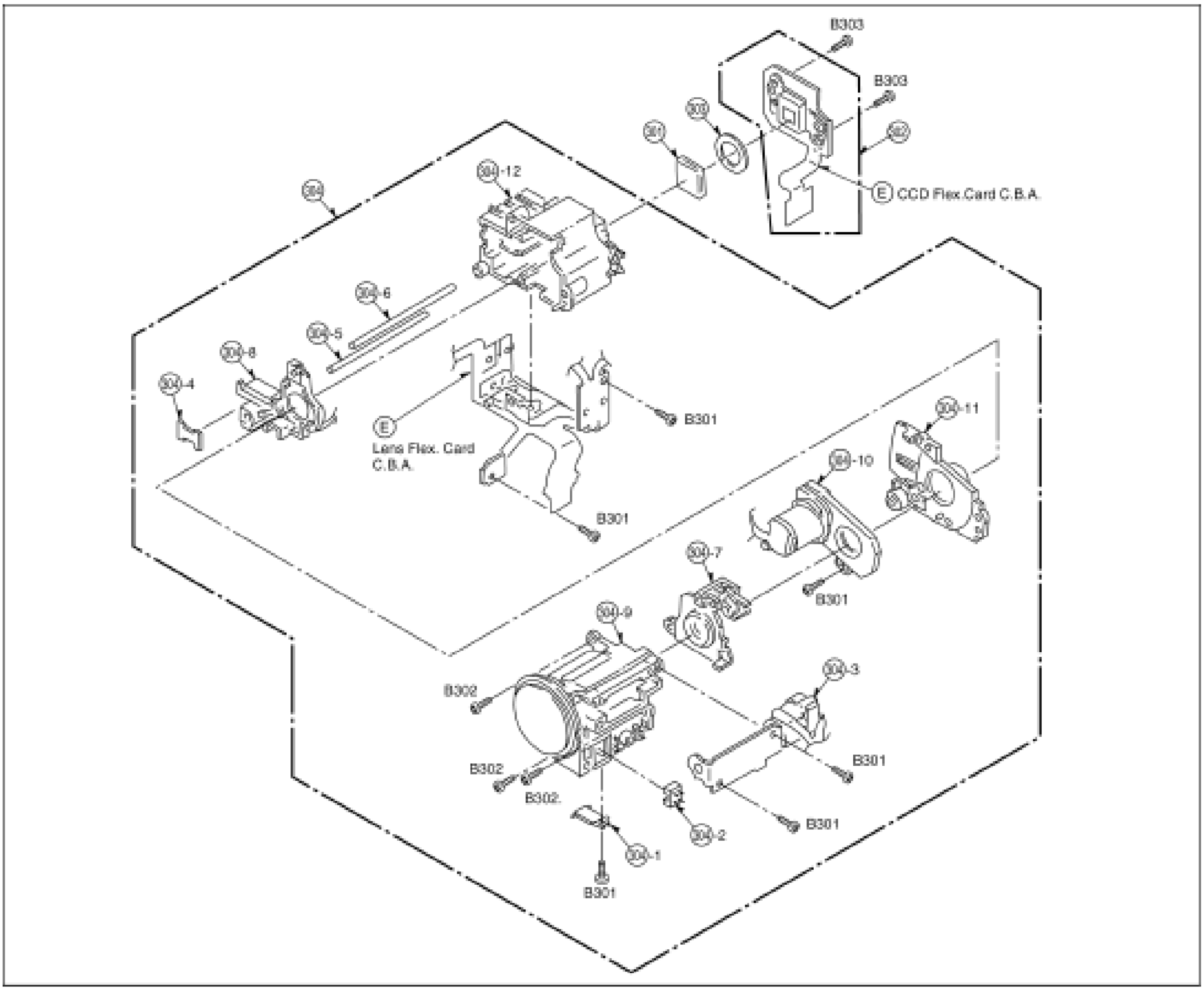


1. CCD Unit	Ref.-No. 302
2. CCD Cushion & Crystal Filter	Ref.-No. 301/303
3. Lens Flex. Card C.B.A. & Zoom Motor Unit & Iris Unit	Ref.-No. 304-3/304-10
4. Main Frame Unit & MR Sensor	Ref.-No. 304-9/304-1
5. 4TH Moving Frame Unit & Guide Pole	Ref.-No. 304-8/304-51/304-6
6. 3RD Lens Frame Unit	Ref.-No. 304-11
7. 2ND Moving Frame Unit	Ref.-No. 304-7

Note 1: Inside of 4th Moving Frame has actuator coil, this coil conect to the Lens Flex. Card C.B.A. Please handle the Lens Flex. Card C.B.A. with care durring disassembly and assembly.

Note 2: Each Ref.-numbers are equivalant to number of Fig. L1 and Parts List.

Fig. L2


B303
B303
303
301
302
E CCD Flex.Card C.B.A.
304
304-12
304-6
304-5
304-8
304-4
E
Lens Flex. Card C.B.A.
B301
B301
304-11
304-10
304-7
B301
304-9
B302
304-3
B302
B302
B301
B301
304-2
304-1
B301

•@

TOP PREVIOUS NEXT

9 ABBREVIATIONS

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT

INITIAL/LOGO		ABBREVIATIONS
A	A GND	Analogue GND
	A HASW	Audio Head Amp Switching Pulse
	A HSW	Audio Switching Pulse
	A MUTE	Audio Mute
	A ORP	Audio Overlap Pulse
	A. TR	Auto Tracking
	A0-8, 0-17	Memory Address
	A3V2	AD Converter Reference Voltage
	AB0-4	Address Bus
	AB0-4, AB12-15	Address Bus Line 0-4, 12-15
	ABSF	Focus Encoder Input
	ACI	Analogue Channel Cording IC
	AD	AD Converter
	AD	Auto Date, Analogue Digital Converter
	AD CLK	AD Clock
	AD REC	Audio Delayed REC
	AD0-6	Address
	AD0-6, ADR0-6	Address Data Line
	ADCLK	Analogue Digital Converter Clock
	ADCNT	Analogue Digital Control
	ADCS	Analogue Digital Chip Select
	A-DET	Audio Detect
	ADREC	Audio Delaied Rec
	ADUB	Audio Dubbing
	AE	Auto Expose
	AECNT	Auto Expose Control
	AEE(H)	Audio E-E (H)
	AEH	Audio Erase Head
	AEIRQ	Auto Expose Interrupt Request
	AF/MF	Auto Focus/Manual Focus
	AF DIS CS	AF DIS Chip Select
	A-FADE(L)	Audio Fade (L)
	AF-AMP	AF HALL Bias
	AFCS	Auto Focus Chip Select
	AFRP	Audio PLL Voltage Control
	AF-VN	Zoom Encoder V-Ref (–)
	AF-VP	Zoom Encoder VREF (+)
	AGC	Automatic Gain Control
	AGCCNT	Automatic Gain Control Control
	AGND	Analogue Ground/Audio Ground
	AGS	Anti Ground Shooting
	AH(P) / (R)	Audio Head (Play) / (Record)
	AHASW	Audio Head Amp Switch Pulse
	AHSW	Audio Head Switch Pulse
	AI, AO	Buffer Input, Output
	AIBCK	Bit Clock (to A/D Converter)
	AIDAT	Serial Data (to A/D Converter)
	AILRCK	L/R Clock (to A/D Converter)
	AIMCK	Master Clock (to A/D Converter)
	ALC CNT	Auto Level Control Control
	ALC MAIN	Auto Level Control Drive
	ALE	Address Latch Enable
	A-LOCK	Full Auto Switch
	A-MUT(H)	Audio Mute (H)
	ANLPTH	Analogue Loop Through High
	AORP	Audio Overlap Pulse
	APCNT	Aperture Control
	APS	Auto Power Save
	ART VH	Artifical Vertical Sync
	AT CNT	Automatic Tracking Gain Adjust
	ATF	Automatic Track Finding
	ATFCLK	41.85MHz Clock
	ATFG	Auto Track Gain
	ATL	Auto Lock Select
	ATN	Absolute Track Number
	ATR OFF(H)	Auto Tracking Off (H)
	ATV	Advanced TV
	AUDIO(N)	Audio (Normal)
	AUX	Auxiliary
	AVDD	Analogue VDD
	AVSS	Analogue Ground
	AWTB	Auto White Balance B-Y
	AWTR	Auto White Balance R-Y
B	BACK	Back-up
	BACK UP	Microcomputer Back-up
	BACK VDD	Back-up Power
	BATT	Battery
	BATT ALARM	Battery Alarm
	BATT REF	Reference Voltage for Battery
	BCB	B Carrier Balance
	BCBM(B-Y)	B-Y Carrier Balance
	BCBM(R-Y)	R-Y Carrier Balance
	BD0-7	REC/Play In/Out Buss
	BDCK	Standard Bus Data Clock (9MHz)
	BDEN	Standard Bus Data Enable
	BEND	Data Block End Request
	BF	Burst Flag Pulse
	BFA	Burst Flag Pulse for Encorder
	BFO/BFI	Burst Flug Input/Output
	BI, BO	Buffer Input, Output
	BL	Back Light
	BL ON	Back Light ON (L)
	BL4V	Back Light 4V
	BLC 0, 1	Back Light Y Control Out, In
	BLDI/O	Back Light Drive Input/Output
	BLK	Blanking Pulse
	BLKA	Blanking for Encorder
	BLKA	Blanking Pulse for Encorder
	BLKI/O	Blanking Pulse In/Out

INITIAL/LOGO		ABBREVIATIONS	INITIAL/LOGO		ABBREVIATIONS
	BLKZ	Blanking Pulse for Zoom Encorder		CH1	Channel 1 (Odd Field)
	BM	Balance Modulator		CHR	Character
	BQUIET	Bus Out Control Signal		CHR BACK	Character Back-up
	BUF IN/OUT	Buffer In/Out		CHR MIX	Character Mix
	B-Y KB	B-Y Carrier Balance		CI, CO	Buffer In/Out
	B-YO	B-Y Signal Out		CI,CO	Buffer Input & Output
				CIF	Control Signal Forward Input
C	C A In/Out	Pre-Aperture In/Out		CIF, CIR	Positive Control Pulse, Negative Control Pulse
	CAPSTP	Capstan Stop Flag		CIR	Control Signal Reverse Input
	C CNT	Colour Control		CK	Clock
	C SYNC	Composite Sync Signal		CL/CLK	Clock
	C/N	Carrier/Noise		CLASS	Classeffication Signal for Compress (DCT/VLC)
	C0-7, C00-07	Chrominance Signal 0-7		CLASS 0.1	Class Control Signal Durring DCT/VLC
	CAGAIN	Aperture Gain Control		CLK135	13.5MHz System Clock
	CAM	Camera		CLK18	18MHz System Clock
	CAM CLK	Camera Clock		CLK2	Clock 2 (824XFH: 12.875MHz)
	CAM RST	Camera Reset		CLK246	24.576MHz Clock
	CAM SIOC	Camera Serial In/Out Contol		CLK27	27MHz System Clock
	CAM T	Camera Test		CLK450	450KHz Clock
	CAM TL	Capstan Trque Limit		CLKDCLK	Digital Clock
	CAP EC	Capstan Trque Control		CLK-PH	Clock Phase Control
	CAP P(H)	Capstan Power On (H)		CLK-REF	Reference Clock
	CAP R/F/S	Capstan Reverse (H)/Stop (M)/Forward (L)		CLP-RST-H	Clamp Reset High Signal
	CAP SW	Capstan Power Control Switch		CLX	TFT X-axis Transmission Clock
	CAPSTP H	Capstan Stop Flag (Stop High)		CLX, CLX1-4	Shift Clock for X Direction (LCD Panel)
	CAPVM	Capstan Motor Current		CLY	Shift Clock for Y Direction (LCD Panel)
	CAPVS	Capstan Motor Power Control Switch		CLY	TFT Y-axis Transmission Clock
	CAS	Compresion, Audio Process, Shuffling/Deshuffling		CLY FG	Cylinder FG Signal
	CAS	Memory Address Strobe (Active Low)		CMEMO0-3	Chroma Memory Output Signal 0-3
	CASDOWN, DWN	Cassette Down (L)		CMIX	Character Mix
	CB, CR	Chroma B, Chroma R		CMO	Chrominance Memory Output
	CBLK	Composite Blanking Pulse		COMPC	Position Detection Pulse
	CC	Channel Cording		COM RDY	Serial Enable Signal
	CCA	Curent Drive Control		CMODE	Camera Mode
	CCA	Current Control Amp		CNCLK	Clock
	CCD	Charge Coupled Devise		CNR	Chrominance Noise Reduction
	CCW	Counterclockwise		CNT, CONT	Control
	CD SP0-7	Digital Chroma		CO	Control Out
	CDS	Correlate Double Sampling Signal		CO0-7	Chrominance Output 0 to 7 (Digital)
	CDS1, 2	Sampling Pulse for CCD Output Signal		COM	Common
	CE	Chip Enable		COM RDY	Serial Transmission Enable
	CE	Control Pulse Erase		COMB	Comb Filter
	CEC	Capstan Error Code		COS EQ	Cosin Equalizer
	C-ERA(H)	Control Erase (H)		CP	Clamp Pulse
	CFEM	Chrominance Memory Signal		CP ON(H)	Camera Power On(H)
	CFM	Chrominance Field Memory		CP2, 20	Clamp Pulse
	CFM1-4	Chroma Field Memory Signal		CP2A, CP2O	Encoder Clamp Pulse
	CG CLK	Character Generator Clock		CPN	Component Signal
	CG CLK DATA	Clock Generator Data		CPOB	Clamp Pulse for Optical Blanking
	CG DATA	Character Generator Data		CPS	Composite Signal
	CGC	Chrominance Gain Control		CPV	Gate Scan Clock
	CGCS	Character Generator Chip Select		CR OUT	Pre Apature Out
	CGO	Character Generator Serial Data		CR POW SW	Camera Remote Power On Switch
	CH	Charge		CRA	Aperture Gain Control

INITIAL/LOGO		
	CRA	Pre Apature Gain Control
	CRST	Camera Reset
	CS	Chip Select
	CS 0-7	Chrominance Signal Out 0-7
	CSEL	Clock Phase Select
	CSI 0-7	Chrominance Signal In 0-7
	CTSW	Crosstalk Switch
	CURR	Current
	CW	Clockwise
	CYL EC	Cylinder Motor Trque Control
	CYL PG	Cylinder Motor PG
	CYL VM	Cylinder Motor Current or Power
D	D CLK	Digital Clock
	D MODE	Digital Mode Switch Signal
	D01-03	Zoom 01-03
	DA UV SEL	D/A Convertor U/V Select
	DAC	Digital Analogue Converter
	DAG	Digital Analogue Ground
	DB0-7	Data 0-7
	DB0-7	Microprocessor Data
	DCC	DC Clamp Control
	DCCNT	DC Control
	DCI	Digital Channel Cording IC
	DCLR	Digital Clear
	DCP	Digital Clamp Pulse
	DCS-CLK, DA	CAS & DV I/F Serial Clock
	DC-STP1	DCS Serial Start
	DC-STP2	DCS Serial Stop
	DCT	Discrete Cosine Transform (Compression)
	DCX7	Serial Data
	DEDP 0-3	Playback Data
	DEDR 0-3	Rec Data
	DEMO	Demodulation
	DEMP	A/D Convertor Empahsis Control
	DEMP	De-Emphasis
	DFD 0-7	Encode Data In/Out Between Shaffling Memory
	DFD0-7	Encode Input/Output Signal for Shuffling Memory
	DIBDCK	Bit Clock
	DICLK	Digital Clock
	DIDAT	Serial Data
	DIDAT	Serial Data Durring Digital Audio In
	DIF	Digital Interface
	DILRCK	L/R Clock
	DILRCK	Serial Clock Durring Digital Audio In
	DIMCK	Master Clock
	DIMCK	Mater Clock Durring Digital Audio In
	DIO 1-8	Data In/Out
	DIOS	Data In/Out Select Control Signal
	DIOS	Select Signal for Digital In/Out
	DIS	Digital Image Stabilizer
	DIS R/B	Digital Image Stabilizer Read (H)/Busy (L)
	DIS R/B	DIS IC Rady/Busy
	DIS/KAND	Digital Image Stabilizer/Sensitivity

INITIAL/LOGO		ABBREVIATIONS
	DISCS	Dis Chip Select
	DISP	Display
	DL	Delay Line
	DOBCK	Audio A/D Convertor Bit Clock
	DOCTL	Data Output Control Signal
	DODAT	Serial Data (to D/A Converter)
	DOLRCK	Audio A/D Converter LR Clock
	DOLRCK	L/R Clock (to D/A Converter)
	DOMCK	Audio A/D Converter Master Clock
	DOMCK	Master Clock (to D/A Converter)
	DQ 1-16	Memory Data
	DRAM CAS	D-RAM Colum Address Strobe
	DRAM OE	D-RAM Out Enable
	DRAM RAS	D-RAM Read Address Strobe
	DREC	AV Delayed REC Start Pulse
	DRK	Dark (LPF Switch for Auto Focus)
	DS1, 2	Double Sampling Pulse
	DSF 0-7	Data In/Out for Shaffling Memory
	DSF 0-7	Input/Output Data to Shuffling Memory (18MHz)
	DSP	Digital Signal Processor
	DSP R/B	DSP IC Rady/Busy
	DSP-48K-H	DSP IC Clock Select
	DSTB	Data Stobe Signal
	DSV	Digital Sum Variation
	DV	Digital Video
	DVB	Digital Video Broadcast
	DVC	Digital Video Cassette
	DVDD	Digital VDD
	DVIO	Digital Video Input Output
	DVSS	Digital Ground
	DX	Shift Data for X Direction (for LCD)
	DY	Shift Data for Y Direction (for LCD)
	DY	TFT Y-axis Shift Data
	DZ	Digital Zoom
E	E Snap	Electric Snap Shot
	E ZM	Electric Zoom
	E2 CS or E2P CS	EEPROM Chip Select
	E2 R/B	EEPROM Rady/Busy
	E2P	EEPROM
	EARP	Earphone
	EC	Torque Control
	ECC	Error Correction Cording
	ECM	Electric Condencer Mic
	ECR	Reference Voltage for Capstan Torque
	EDA	Error Correction, DCI, ATF Servo
	EE CS	EEPROM Chip Select
	EE R/B	EEPROM Read (H)/Busy (L)
	EEPROM	Electric Erasable Programable Read Only Memory
	EIS	Electric Image Stabilizer (DIS)
	EMP	A/D Convertor Emphasis Control
	ENAB	Enable
	ENV	Enverope
	EOB	End of Block

INITIAL/LOGO		ABBREVIATIONS
	EQ	Equalizer
	EVF	Electric View Finder
	EXT DC	External DC (AC Adaptor)
	EXT DC(H)	AC Adaptor DC (H)
	EXT NOREG	AC Adaptor 6V
	EXT S DATA	Serial Data for Edit
	EXT SCK	Serial Clock for Edit
	EZOOM	Electric Zoom
F		
	F ENC	Lens F-Value
	FACT MODE	Factry Mode (not used in the service)
	FB	Feed Back
	FC	Saw Tooth Signal In
	FCK	Clock
	FCO	Saw Tooth Signal Generator
	FENC	Focus Encoder
	FEND	Frame End Pulse
	FH2B	FH/2 (15.625KHz / 2=7.8125KHz)
	FIX OSD	Auto Tracking Off (H)
	FLICK	Flicker Output
	FM	Field Memory
	FM0-7	Field Memory 0-7
	FMCO0-3	Field Memory Chrominance Out 0-4
	FMDIR	Focus Motor Direction
	FMOEM	Field Memory Enable
	FMOEO	Field Memory Enable
	FMT1-4	Focus Motor Terminal 1-4
	FMY00-07	Field Memory Luminance Out 0-7
	FMYI0-07	Field Memory Luminance In 0-7
	FNO	F Value
	FPS	Frame Refference Signal
	FR	Capstan Reverse High
	FRP	Frame Refference Pulse
	FRPSO	Frame Start Pulse
G	G1, G2, G3	Gap 1, 2 and 3
	GCA	Gain Control AMP
	GCNT	Gain Control
	G-CNT	AGC Adjustment
	GCTRL	Gain Control
	GENE	Generator
	GF	FG AMP Terminal
	GSW	Ground for Switching Power
H	H/M/N	Hi-Fi / Mix / Normal
	H/N	Hi-Fi / Normal
	H1, 2	H. CCD Drive Pulse
	HAP	Horizontal Aperture
	HASW	Head AMP Switching Pulse
	HB	Hall Bias
	HBR SET	High Brightness Set
	HBRST	High Brightness Set
	HCLR	High Clear
	HCP	Shift Clock for Horizontal Drive
	HD	Horizontal Drive Pulse
	HDTV	High Definition TV
	HEX	Hexadecimal
	HG	Hall Gain
	HID	Head Switching Pulse
	HLT	High Bright Signal
	HALL IN(+), (–)	Input Signal from Hall IC
	HP	Headphone
	HPF	High Pass Filter
	HSE	Modulated Data Output
	HSP	Timing Pulse for Shaffling Memory
	HSS	Horizontal Sync Signal
	HSW	Head Switching Pulse
	HS-WT	High Speed Zoom
	HSZ	High Speed Zoom
I	I/F	Interface
	I-2 C	Inter Integrated Circuit
	ID(H)	Wide Television (H)
	IMP	Inter Microprocessor Protocol
	INF	CCD Input Signal 1
	INF	Input Frame Signal
	INS	CCD Input SIgnal 2
	INTER	Interval Recording
	INV	Inverter
	IOU	R-Y Analogue Signal Output
	IOV	B-Y Analogue Signal Output
	IOY	Y Analogue Signal Output
	IR	Infrared Rays
	IRDET	Imfrared Ray Detection
	IREF	Current Adjustment Terminal
	IRIS/SH	Iris / Shutter Control
	IRQ	Interrupt Request
	ITI	Insert & Track Information
J	JPEG	Joint Photographic Image Cording Experts Group
K	KANDO	Digital Gain Up
	KB	Carrier Balance
	KEY IN	Key Scan
	KND	Digital Gain Up
	KNEE	Luminance Compensate
L	LCD	Liquid Crystal Display
	LCD P(L)	LCD Power On (L)
	LD	Load Pulse
	LDD	Liquid Direct Drive
	LEDCNT	LED Control
	LI-BATT	Lithium Battery
	LOAD	Loading
	LOAD F, R	Loading Direction (F: Forward / R: Reverse)
	LPF	Low Pass Filter
	LRMONO	Monoral Audio (L + R)
	LSB	Least Significant Bit

INITIAL/LOGO		ABBREVIATIONS
	LVL	LPF Switch for Auto Focus
M	M1-3	Motor Coil Terminal 1 to 3
	MA0-5	Microprocessor Address Data 0-5
	Mbps	Megahertz Bit Per Second
	MD	Modulation
	MD0-7	Microprocessor Data 0-7
	MDT0-7	Microprocessor Data 0-7
	ME (TAPE)	Metal Evaporated (Tape)
	MENB	Focus Motor Enable
	MFF	Manual Focus Far
	MFN	Manual Focus Near
	MHSYNC	Monitor Horizontal Sync Signal
	MIC	Memory In Cassette
	MIG	Meta In Gap
	MIX N.R.D.	Non Rec Data Mix
	MOD	Modulation
	MOUT	Mic Out
	MP (TAPE)	Metal Particle (Tape)
	MPEG	Moving Picture Image Cording Experts Group
	MPEG2	Moving Picture Image Cording Experts Group Phase 2
	MRST	Focus Motor Reset
	MSB	Most Signal Bit
	MVSYNC	Monitor Vertical Sync Signal
N	N/F	Near/Far Focus
	N/P	NTSC/PAL
	NB1-3	Base for NPN Transistor
	NC	No Connection
	NC1-3	Corrector of NPN Transistor
	NCLR	Power On Reset
	NCP1	Clamp Pulse
	NCP2+VDH	Clamp Pulse + Horizontal Drive Pulse
	NCP2+VDM	Clamp Pulse + Gate Pulse
	NDE	Non Liner De-Emphasis
	NE	Emitor of NPN Transistor
	NLE	Non Liner Emphasis
	NR	Noise Reduction
	NRD	Non Rec Data
	NRD BLK	Non Rec Data Blanking
	NRD CLK	No Rec Data Clock
	NRE	Read Enable Input (Low Active)
	NWE	Write Enable (Low Active)
O	OB	Optical Black
	OBCNT	Optical Black Control
	OBREF	Reference Voltage for Optical Black Control
	OE	Output Enable
	OFH	Horizontal Counted Down Clock Signal (Reference)
	OFS	Offset
	OP	Operation AMP Output
	OSD	ON Screen Display
	OVL	Overlap Pulse
	OZ	Optical Zoom
P	P SW	Power Switch
	PB1-3	PNP Base 1-3
	PBCTL	Play Back Control
	PBCTL	Pre-Branking Control
	PBH	Head Amp Switch
	PBLK	Pre-Blanking (Pulse)
	PC1-3	Corrector of PNP Transistor
	PCBM	Carrier Balance
	PCH	Phase Compensator (Hall AMP)
	PCI	Phase Compensator (Current)
	PCO	Phase Compensator Out
	PCS	Switching Power Control
	PCV	Phase Compensator (Voltage)
	PE	Emitter of PNP Transistor
	PED	Pedestal
	PEDECNT	Pedestal Control
	PENO	Alarm (L)
	PFP	Pilot Frame Position
	PGA, B	Power Ground A, B
	PGC	Pulse Generator Comparator
	PGI	Pulse Generator Input
	PGMM	Pulse Generator Monostable Multivibrator
	PGO	Output of Pulse Generator AMP
	PMODE	Select Signal for Normal / Wide Screen
	PON	Power On
	POR	Power On Reset
	POSCOM	Common Position
	PREAMP	Pre-AMP
	PREBLK	Pre-Blanking
	PT	Protect for V Voltage
	PWM	Pulse Width Modulation
	PWMB	Pulse Width Modulation Pulse
Q	Q2H	Source Output Select
R	R CTL P	Recorded Control Pulse (+)
	R CTL R	Recorded Control Pulse (–)
	R/B	Read/Busy
	R/L	Direction Control for Data Transmition
	RA	Recording AMP
	RA1	Rec AMP 1
	RAC AC	Rec Audio Current
	RAD	Read Address Data
	RAE	Read Address Enable
	RB	Read Busy
	R-B	R Bias
	RCB	R Carrier Balance
	RE	Read Enable
	RE(F), (S)	Rotary Erase Head Transformer
	REB	R Bias
	REC CC	Rec Current Control
	REC CCNT	Rec Current Control
	RECCTRL	Recording Control Pulse
	RECI	Rec Amp Switch

INITIAL/LOGO		ABBREVIATIONS
	RENCF	Lens Control (Forward)
	RENCR	Lens Control (Reverse)
	RERASE	Rotary Erase Head
	RGBIV1-2	1V Inverted Signal 1-2
	RGO R/G OFF	Offset Voltage for AWT R
	RSF	Capstan Direction (Reverse / Stop / Forward)
	RST	Reset
	RSTB	R Strobe
	RSTPWD	Reset Power Down Input
	RSTR	Reset Read
	RSTW	Reset Write
	RT	Saw Tooth Terminal
	RVCO	Resister for Oscillation
	RW	Read Write
	RWAE	Read Write Enable
S	S PHOT	Supply Photo Transistor
	S/H	Sampling Hold
	S/S	Start/Stop
	SBD	Serial Data
	SBI	Serial Data Input
	SBO	Serial Data Output
	SBT	Serial Clock
	SCAN0-5	Key Scan 0-5
	SCK	Serial Clock
	SCR	Search
	SCR, S.C.R.	Still Cue Review
	SEG.	Segment
	SET	White Balance Set
	SH/IRIS	Shutter/Iris Control
	SHIFT	Capasitor for Phase Shift
	SI	Serial Data Input
	SIC	Shift In Clock Input
	SIOC	Serial In/Out Control
	SMCE	Shaffling Memory Chip Enable
	SMRS	Shaffling Memory Read Strobe
	SMWE	Shaffling Memory Write Enable
	SMWS	Shaffling Memory Read Strobe
	SNAP	Snap Shot
	SNS LED	Sensor LED
	SO	Serial Data Output
	SPA	ATF Smapling Pulse
	SPEN	8 Bit Shift Register Enable
	SPK	Speaker
	SPO	Reset for Switcing Power
	SPST	8 Bit Shift Register Strobe
	SREELP	Supply Reel Pulse
	SRT	Start
	SSA	Start Sync block Area
	SSW	Select Signal for Low Pass Filter
	ST5V	Safety Tab 5V
	STAB	Safety Tab Switch
	STB	Stand by Signal
	STB	Strobe
	SWB	Switching Pre-Drive Pulse
	SYL EC	Cylinder Torque Control
	SYL FG	Cylinder FG
T	T PHOT	Take-up Photo Transistor
	TBC	Time Base Conntrol
	TFT	Thim Film Transistor
	TH	Thermostat for Battery
	TI	Test Mode Select
	TL	Torque Limit
	TM	Sub Code
	TMD	Sub Code Data
	TRE	Tracking Error Signal
	TREEL(P)	Take-up Reel (Pulse)
	TRFIX	Tracking Fix
	TRIWAVE	Tracking Wave
	TRP	Tracking Position
	TRP	Trap
	TSR	Head Switching Refference
	TST	Time Scale Transfer
U	U/V SEL	R-Y/B-Y Select Signal
	UNLOAD	Un-Loading
	UNRE	Microprocessor Read Enable
	UNWE	Microprocessor Write Enable
	UV	R-Y/B-Y
	UV SEL	R-Y/B-Y Select Signal
V	V1-V4	V. CCD Drive Pulse
	VB	VH Filter Switching
	VCE	Power Terminal
	VCNTL	Video Control
	VCO	Voltage Control Oscillator
	VCP	Shift Clock Output for Vertical Drive
	VCTLD	Video Control
	VCTRL	Voltage Charge Control
	VD	Vertical Drive Pulse
	VDDX	X Drive Power for Colour LCD
	VDDXY	XY Drive Power for Colour LCD
	VDDY	Y Drive Power for Colour LCD
	VDREC	Video Delayed Rec
	Vgg	Voltage for Gate IC
	Vgl	Gate off Voltage
	VID	Video Signal Out
	VIN	Video In
	VITC	Vertical Interval Time Code
	VITERBI	One of Signal Detection Method
	VL	Low Voltage
	VLC	Variable Length Cording
	VLOCKP	Artificial Sync Pulse
	VLP	Artificial Sync Pulse
	VM	Motor Voltage
	VMD	Velocity Mode Data
	VMD1-3	Electric Shutter Mode

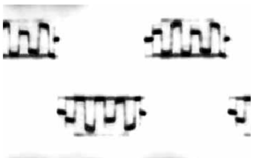
INITIAL/LOGO		ABBREVIATIONS	INITIAL/LOGO		ABBREVIATIONS
	VMODE	NTSC/PAL Select Switch			
	VMVH	VH Filter Switching			
	VORP	Video Overlap			
	VRB	Voltage Refference Bottom			
	VRBS	Voltage Refference Bottom Output			
	VREF1R3V	Refference Voltage 1.3V			
	VREF3R3V	Refference Voltage 3.3V			
	VREFH	Refference Voltage High Side			
	VREFL	Refference Voltage Low Side			
	VRI	Refference Voltage Input			
	VRO	Refference Voltage Output			
	VRT	Voltage Refference Top			
	VRTS	Voltage Refference Top Output			
	VS	Switching Comparator			
	VSS	Vertical Sync Signal			
	VSSX	X Driver Power for Colour LCD			
	VSSXY	X-Y Driver Power for Colour LCD			
W	W/N	Mode Select for Window Mode			
	W/N	Wide / Normal			
	WAD	Write Address Enable			
	WAE	Write Address Enable			
	WAERAE	Write Address Enable			
	WARI	Interrupt			
	WB	White Balance			
	WE	Write Enable			
	WEM	Memory Write Enable			
	WHD	Wide Horizontal Drive Pulse			
	WIDE A	Wide Zoom			
	WSB	B AGC Control			
	WSR	R AGC Control			
	WTV	Wide TV			
X	XP	FG Logic Reset			
Y	Y FM0-7	Y Field Memory 0-7			
	YCE	Cylinder Error Code			
	YGC	Y Gain Control			
	YMO 0-7	Y Field Memory 0-7			
	YNCST	Noize Canceller			
	YNR	Luminance Noise Reduction			
	YSDP 0-7	Digital Y Out 0-7			
Z	Z.ENC	Zoom Encoder			
	Z.MIC	Zoom Mic			
	ZENC	Zoom Encoder Output			
	ZMDIR	Zoom Drive			
	ZMEN	Zoom Enable			
	ZMT	Zoom Motor Tele Side			
	ZMT (+)/(–)	Zoom Motor (+)/(–)			
	ZMTER	Zoom Motor Tele Side			
	ZMW	Zoom Motor Wide Side			
	ZSW	Zoom Switch			

10 WAVEFORM TABLE

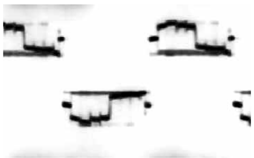
TOP PREVIOUS NEXT

•@

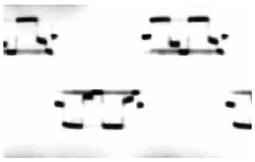
TOP PREVIOUS NEXT



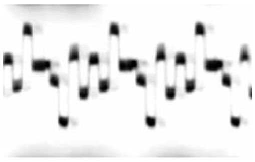
IC901-40 STOP
10.8 Vp-p (20 sec./div.)
COLOUR BAR



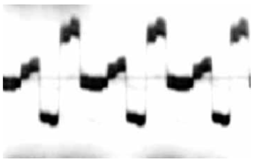
IC901-43 STOP
10.8 Vp-p (20 sec./div.)
COLOUR BAR



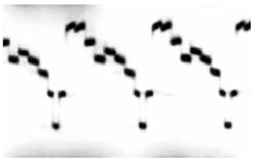
IC901-45 STOP
10.8 Vp-p (20 sec./div.)
COLOUR BAR



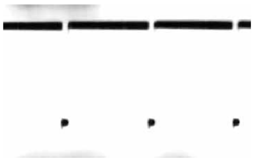
IC901-53 STOP
3.0 Vp-p (20 sec./div.)
COLOUR BAR



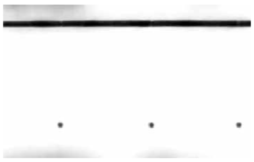
IC901-54 STOP
2.8 Vp-p (20 sec./div.)
COLOUR BAR



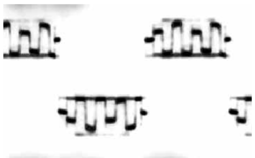
IC901-59 STOP
5.0 Vp-p (20 sec./div.)
COLOUR BAR



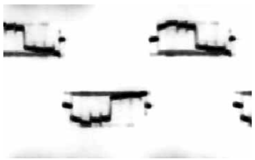
IC901-61 STOP
7.0 Vp-p (20 sec./div.)
COLOUR BAR



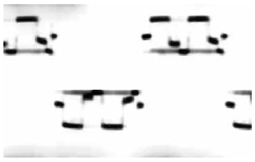
IC901-62 STOP
3.0 Vp-p (5msec./div.)
COLOUR BAR



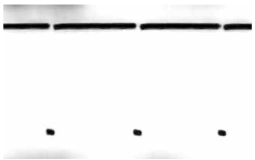
FP801-13 STOP
8.0 Vp-p (20 sec./div.)
COLOUR BAR



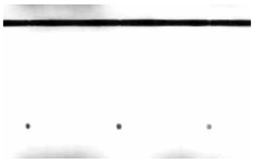
FP801-14 STOP
8.0 Vp-p (20 sec./div.)
COLOUR BAR



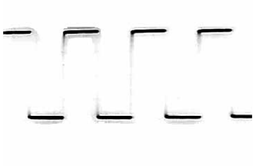
FP801-15 STOP
8.0 Vp-p (20 sec./div.)
COLOUR BAR



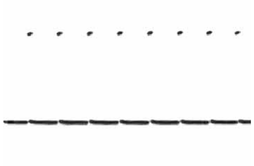
IC801-43 STOP
2.8 Vp-p (20 sec./div.)
COLOUR BAR



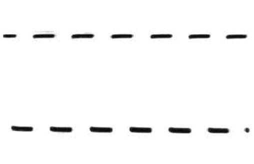
IC801-45 STOP
2.8 Vp-p (5msec./div.)
COLOUR BAR



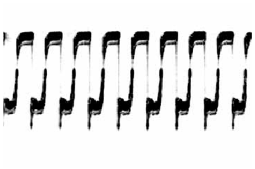
IC2201-58 REC/PLAY
2.8 Vp-p (0.2msec./div.)



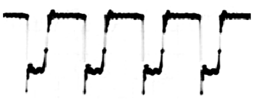
IC2201-56 REC/PLAY
2.2 Vp-p (5msec./div.)



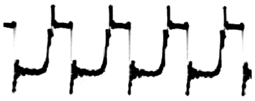
IC2201-55 REC/PLAY
2.8 Vp-p (1msec./div.)



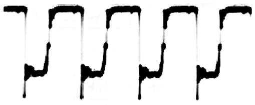
IC1001-4 STOP
1.0 Vp-p (1 sec./div.)



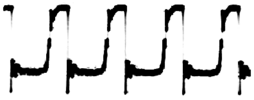
IC1001-46 STOP
1.2 Vp-p (0.5 sec./div.)



IC1001-56 STOP
1.4 Vp-p (0.5 sec./div.)



IC1001-57 STOP
1.0 Vp-p (0.5 sec./div.)



IC1001-64 STOP
1.0 Vp-p (0.5 sec./div.)

11 SCHEMATIC DIAGRAMS

TOP PREVIOUS NEXT

11.1 OVERALL SCHEMATIC DIAGRAM

11.2 INTERCONNECTION SCHEMATIC DIAGRAM

11.3 E.V.F. SCHEMATIC DIAGRAM

11.4 POWER SCHEMATIC DIAGRAM

11.5 DRIVE SCHEMATIC DIAGRAM

11.6 MIC UNIT SCHEMATIC DIAGRAM

11.7 MONITOR& SENSOR FLEX. CARD SCHEMATIC DIAGRAM

11.8 CCD FLEX. CARD SCHEMATIC DIAGRAM

11.9 TOP OPERATION SCHEMATIC DIAGRAM

11.10 MULTI JACK SCHEMATIC DIAGRAM

11.11 S/S POWER FLEX. CARD SCHEMATIC DIAGRAM

11.12 MMC/AV JACK SCHEMATAIC DIAGRAM

11.13 SIDE OPERATION UNIT SCHEMATIC DIAGRAM

•@

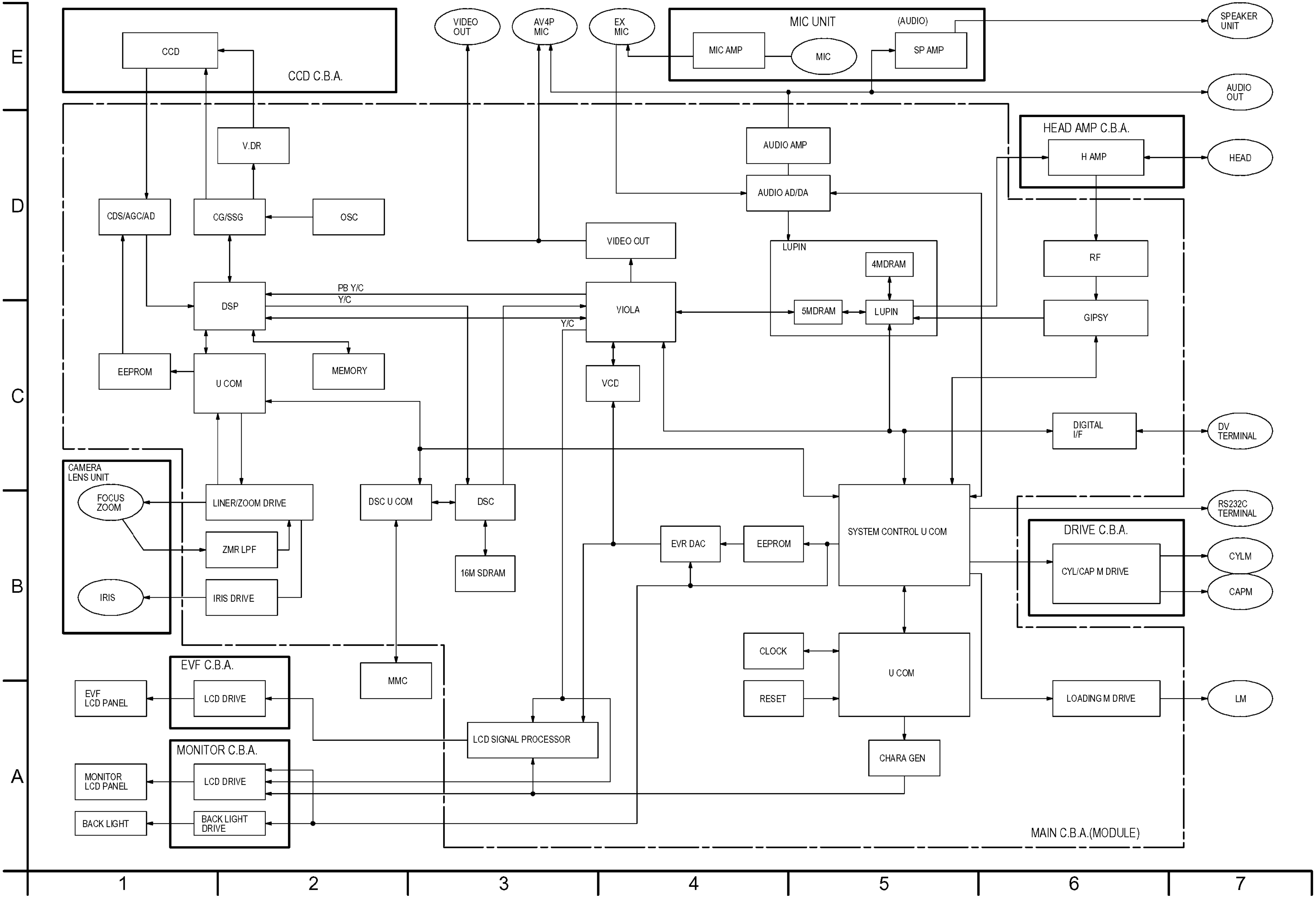
TOP PREVIOUS NEXT

11.1 OVERALL SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT

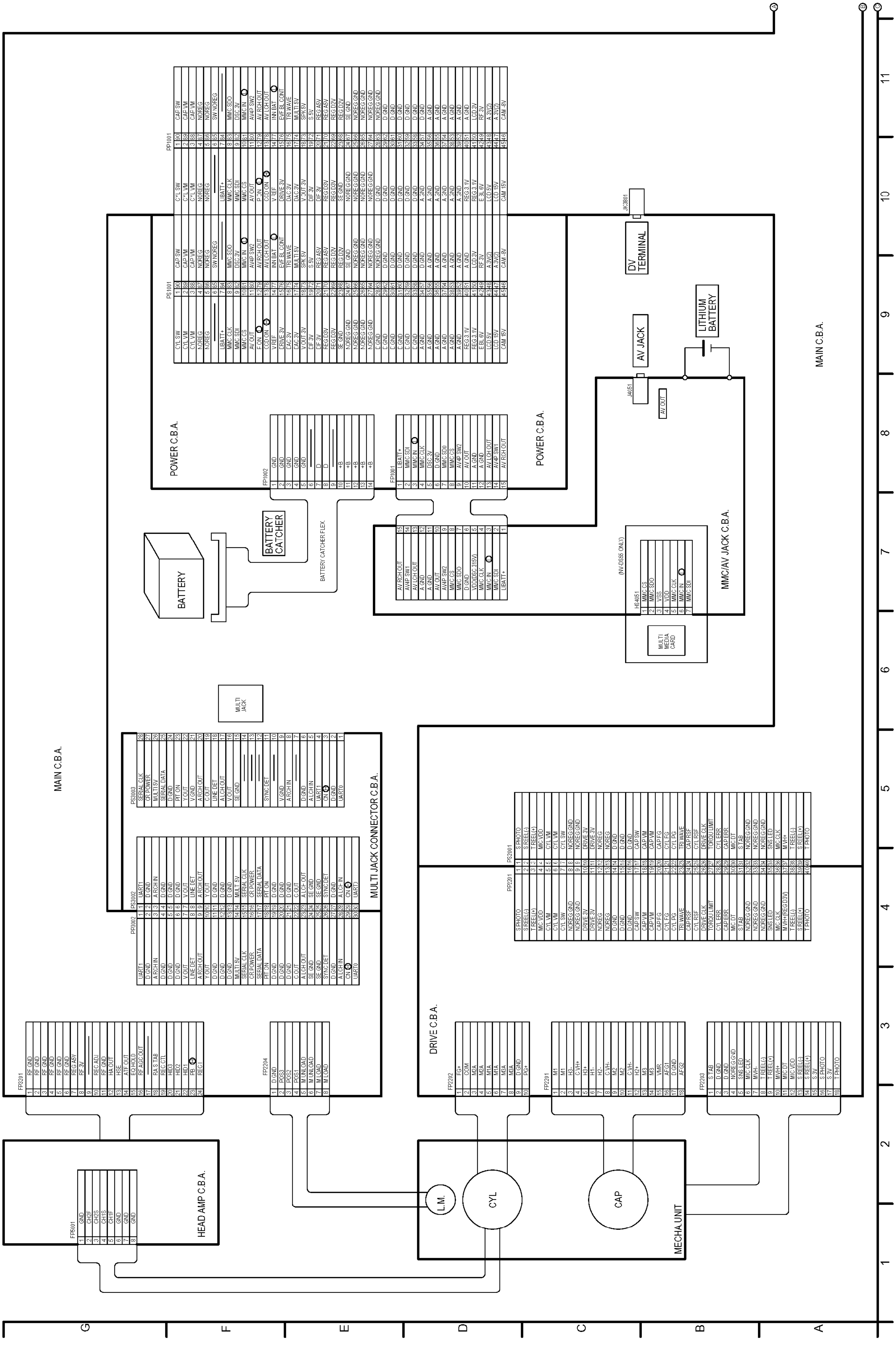

CCD C.B.A.
CCD
V.DR
CDS/AGC/AD
CG/SSG
OSC
DSP
EEPROM
U COM
MEMORY
PB Y/C
Y/C
Y/C
VIDEO OUT
VIDEO OUT
AV4P MIC
EX MIC
MIC UNIT
(AUDIO)
MIC AMP
MIC
SP AMP
SPEAKER UNIT
AUDIO OUT
AUDIO AMP
AUDIO AD/DA
LUPIN
4MDRAM
5MDRAM
LUPIN
VIOLA
VCD
HEAD AMP C.B.A.
H AMP
HEAD
RF
GIPSY
DIGITAL I/F
DV TERMINAL
CAMERA LENS UNIT
FOCUS ZOOM
IRIS
LINER/ZOOM DRIVE
ZMR LPF
IRIS DRIVE
DSC U COM
DSC
16M SDRAM
MMC
EVR DAC
EEPROM
SYSTEM CONTROL U COM
RS232C TERMINAL
DRIVE C.B.A.
CYL/CAP M DRIVE
CYLM
CAPM
CLOCK
RESET
U COM
CHARA GEN
LOADING M DRIVE
LM
EVF C.B.A.
EVF LCD PANEL
LCD DRIVE
LCD SIGNAL PROCESSOR
MONITOR C.B.A.
MONITOR LCD PANEL
LCD DRIVE
BACK LIGHT
BACK LIGHT DRIVE
MAIN C.B.A.(MODULE)
E
D
C
B
A
1
2
3
4
5
6
7

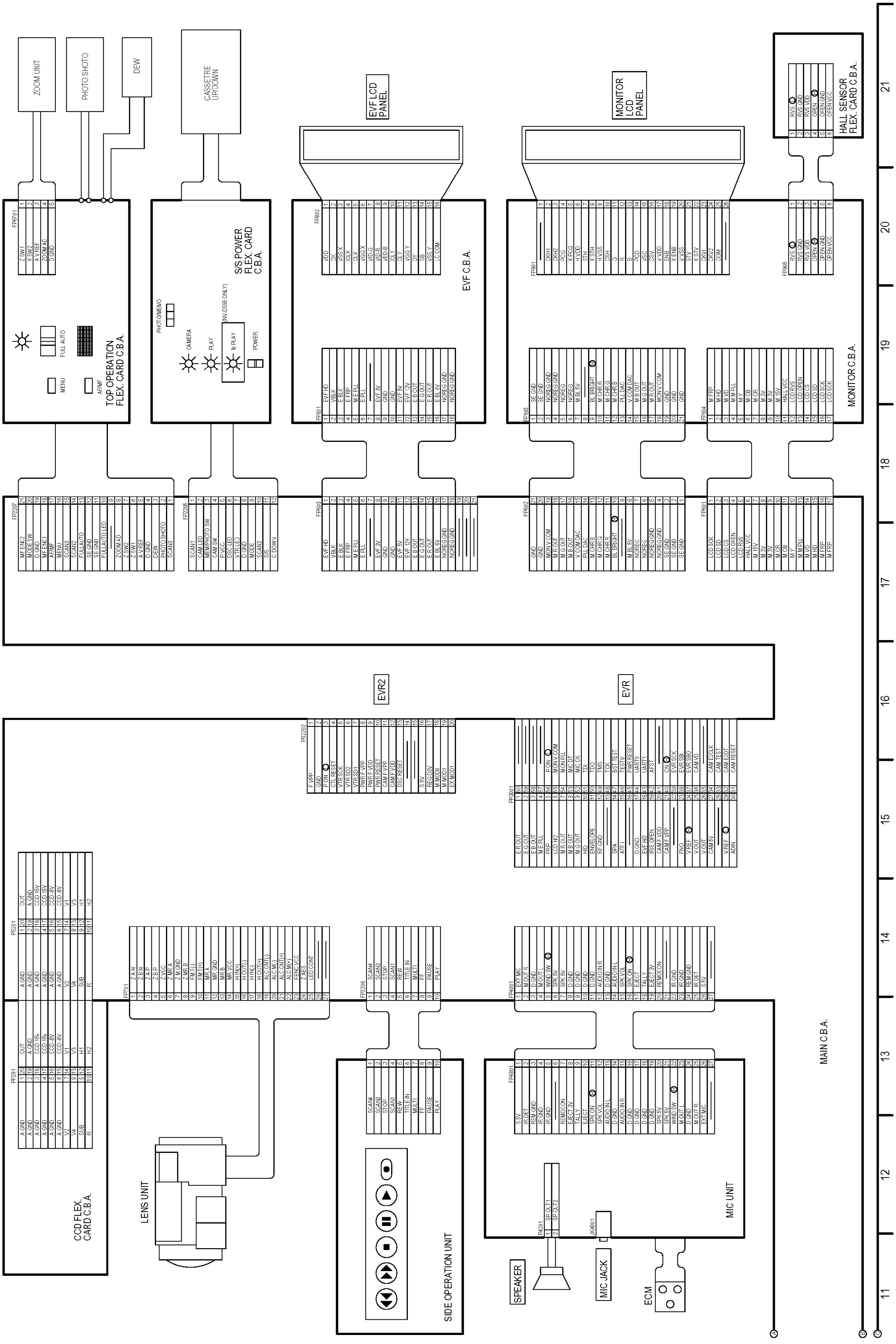
11.2 INTERCONNECTION SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


MAIN C.B.A.
POWER C.B.A.
MULTI JACK CONNECTOR C.B.A.
MMC/AV JACK C.B.A.
DRIVE C.B.A.
HEAD AMP C.B.A.
MECHA UNIT
L.M.
CYL
CAP
BATTERY
BATTERY CATCHER
BATTERY CATCHER FLEX
MULTI JACK
MULTI MEDIA CARD
(NV-DS55 ONLY)
AV JACK
AV OUT
LITHIUM BATTERY
DV TERMINAL
FP5001
FP3201
FP2204
FP2202
FP2201
FP2203
PP2201
PS2001
PP3002
PS3002
PS3003
FP1002
FP1001
PS1001
PP1001
J4051
JK3801
HS4051
FP2204: D GND, POS3, POS2, POS1, M UNLOAD, M LOAD, M LOAD
FP2202: FG+, COM, M2A, M2A, M1A, M1A, M3A, M3A, D GND, PG+
FP5001: GND, CH2F, CH2S, CH1S, CH1F, GND, GND, GND
FP1002: GND, GND, GND, GND, D, D, D, D, +B, +B, +B, +B
FP1001: LIBATT+, MMC SDI, MMC IN, MMC CLK, DSC 3V, D GND, MMC SDO, MMC CS, AV4P SW2, AV OUT, A GND, A GND, AV LCH OUT, AV4P SW1, AV RCH OUT
HS4051: MMC CS, MMC SDO, VSS, VDD, MMC CLK, MMC IN, MMC SDI
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G



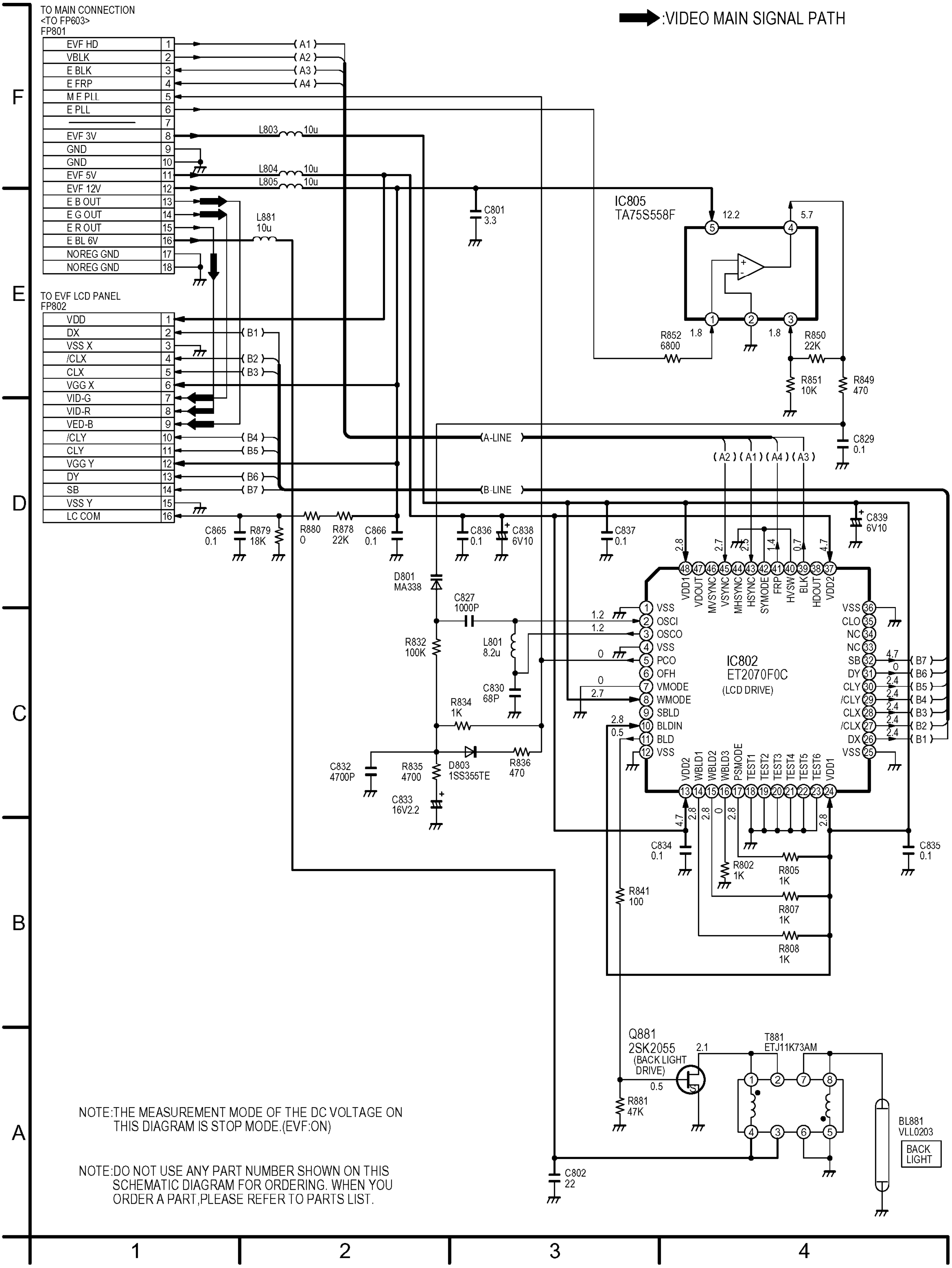
ZOOM UNIT
PHOTO SHOTO
DEW
CASSETRE UP/DOWN
EVF LCD PANEL
MONITOR LCD PANEL
HALL SENSOR FLEX. CARD C.B.A.
TOP OPERATION FLEX. CARD C.B.A.
S/S POWER FLEX. CARD C.B.A.
EVF C.B.A.
MONITOR C.B.A.
FP6701
FP2207
FP2205
FP801
FP802
FP803
FP901
FP902
FP903
FP904
FP905
FP601
FP603
PS2202
PP3001
EVR2
EVR
CCD FLEX. CARD C.B.A.
PP291
PS201
FP701
FP2206
FP4001
FP4801
P4701
JK4801
LENS UNIT
SIDE OPERATION UNIT
MIC UNIT
SPEAKER
MIC JACK
ECM
MAIN C.B.A.
MENU
AF/MF
FULL AUTO
PHOTOMEMO
CAMERA
PLAY
(NV-DS55 ONLY)
N PLAY
POWER
SP OUT1
SP OUT2
11
12
13
14
15
16
17
18
19
20
21
A
B
C

11.3 E.V.F. SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


:VIDEO MAIN SIGNAL PATH
TO MAIN CONNECTION
<TO FP603>
FP801
EVF HD 1
VBLK 2
E BLK 3
E FRP 4
M E PLL 5
E PLL 6
7
EVF 3V 8
GND 9
GND 10
EVF 5V 11
EVF 12V 12
E B OUT 13
E G OUT 14
E R OUT 15
E BL 6V 16
NOREG GND 17
NOREG GND 18
TO EVF LCD PANEL
FP802
VDD 1
DX 2
VSS X 3
/CLX 4
CLX 5
VGG X 6
VID-G 7
VID-R 8
VED-B 9
/CLY 10
CLY 11
VGG Y 12
DY 13
SB 14
VSS Y 15
LC COM 16
A1 A2 A3 A4
B1 B2 B3 B4 B5 B6 B7
L803 10u
L804 10u
L805 10u
L881 10u
C801 3.3
IC805
TA75S558F
12.2
5.7
1.8
1.8
R852 6800
R850 22K
R851 10K
R849 470
C829 0.1
A-LINE
B-LINE
C865 0.1
R879 18K
R880 0
R878 22K
C866 0.1
C836 0.1
C838 6V10
C837 0.1
C839 6V10
D801 MA338
C827 1000P
R832 100K
L801 8.2u
C830 68P
R834 1K
C832 4700P
R835 4700
D803 1SS355TE
R836 470
C833 16V2.2
IC802
ET2070F0C
(LCD DRIVE)
VDD1 VDOUT MVSYNC VSYNC MHSYNC HSYNC SYMODE FRP HVSW BLK HDOUT VDD2
VSS OSCI OSCO VSS PCO OFH VMODE WMODE SBLD BLDIN BLD VSS
VSS CLO NC NC SB DY CLY /CLY CLX /CLX DX VSS
VDD2 WBLD1 WBLD2 WBLD3 PSMODE TEST1 TEST2 TEST3 TEST4 TEST5 TEST6 VDD1
2.8 2.7 2.5 1.4 0.7 4.7
1.2 1.2 0 0 2.7 2.8 0.5
4.7 0 2.4 2.4 2.4 2.4 2.4
4.7 2.8 2.8 0 2.8 2.8
C834 0.1
C835 0.1
R802 1K
R805 1K
R807 1K
R808 1K
R841 100
Q881
2SK2055
(BACK LIGHT DRIVE)
2.1
0.5
R881 47K
T881
ETJ11K73AM
C802 22
BL881
VLL0203
BACK LIGHT
F E D C B A
1 2 3 4

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.(EVF:ON)

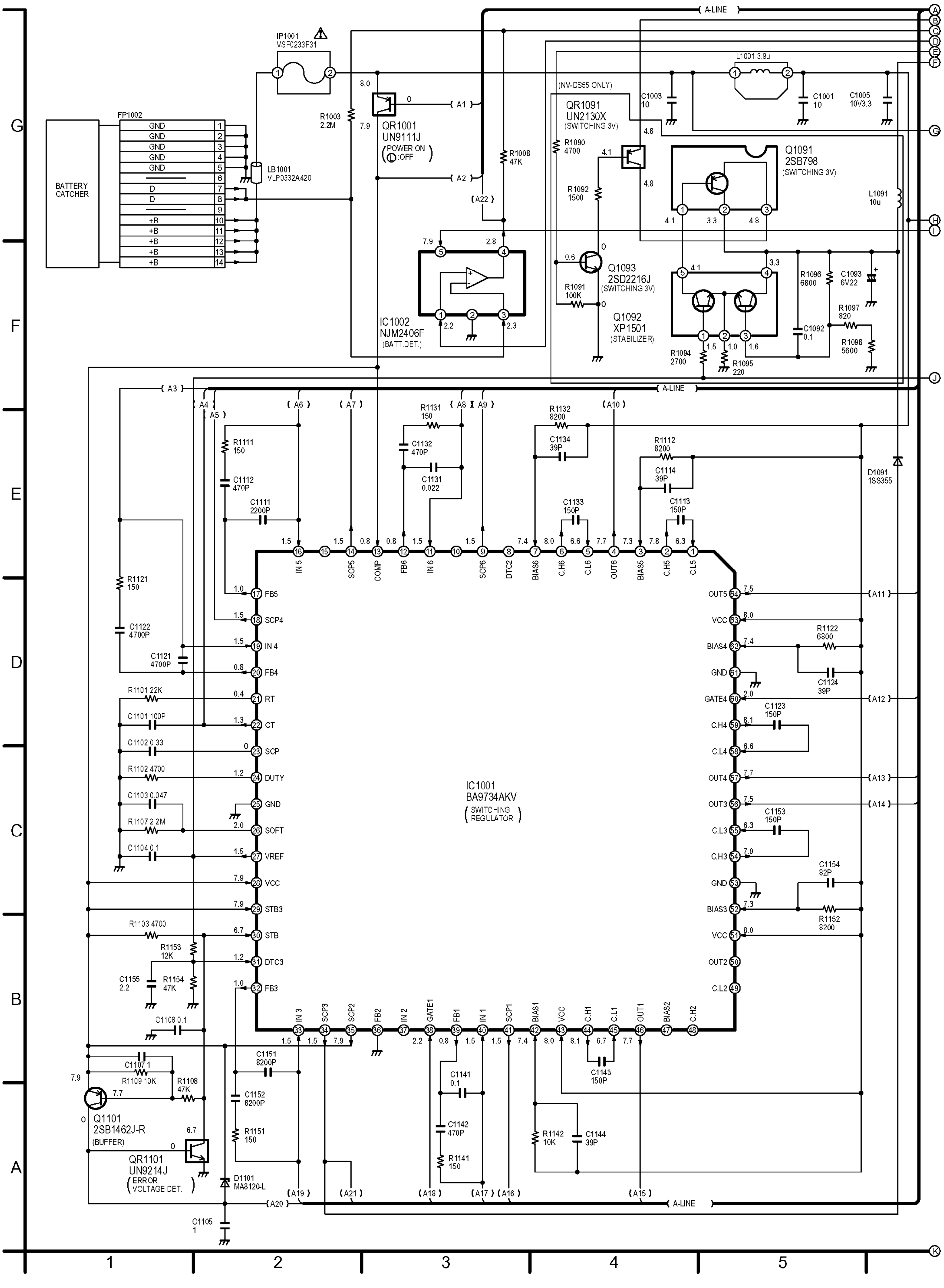
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

11.4 POWER SCHEMATIC DIAGRAM

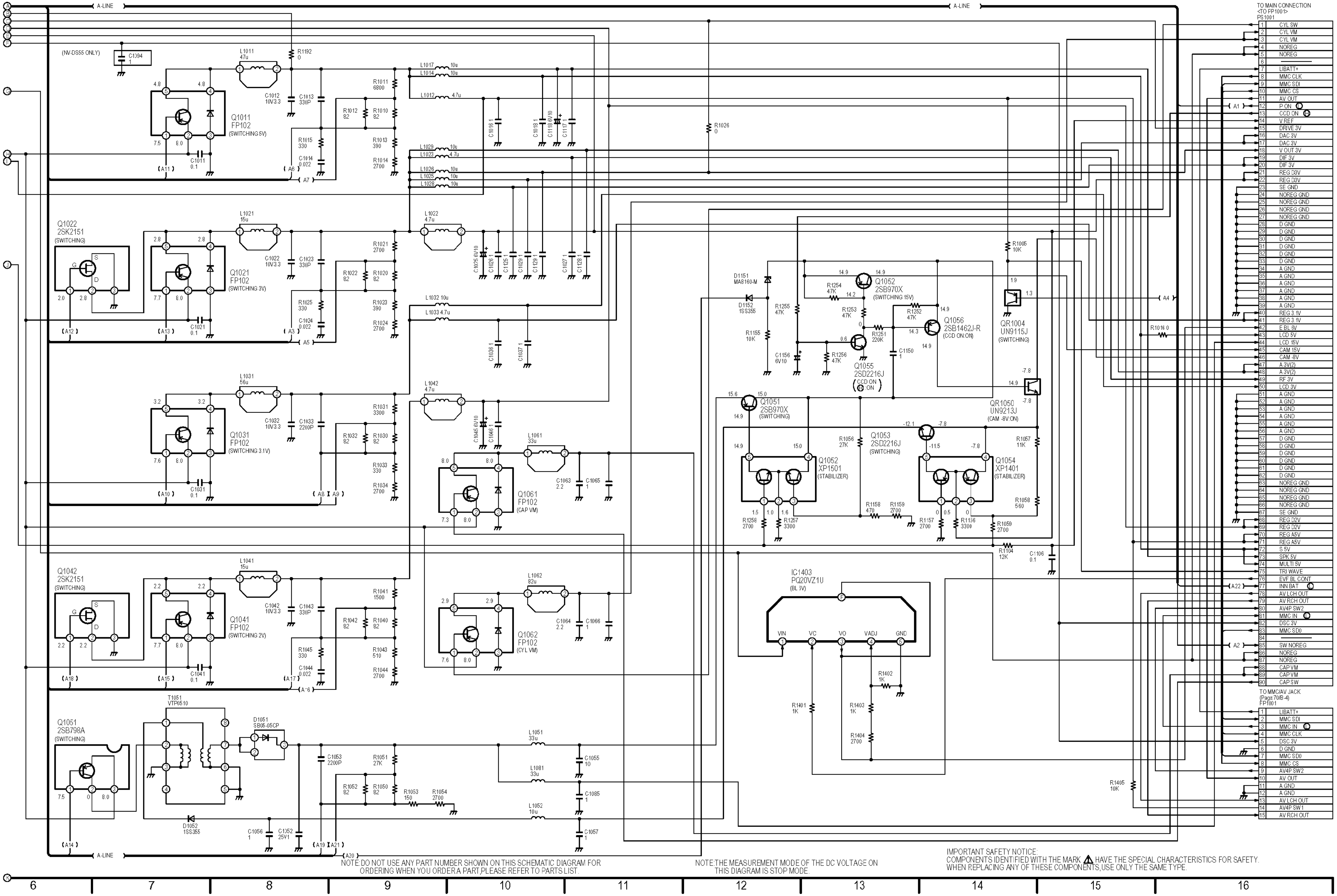
TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT



A-LINE
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
IP1001
VSF0233F31
FP1002
BATTERY CATCHER
GND
GND
GND
GND
GND
D
D
+B
+B
+B
+B
+B
LB1001
VLP0332A420
R1003
2.2M
QR1001
UN9111J
(POWER ON L:OFF)
R1008
47K
A1
A2
A22
IC1002
NJM2406F
(BATT.DET.)
L1001 3.9u
C1003
10
C1001
10
C1005
10V3.3
(NV-DS55 ONLY)
QR1091
UN2130X
(SWITCHING 3V)
R1090
4700
R1092
1500
Q1091
2SB798
(SWITCHING 3V)
L1091
10u
Q1093
2SD2216J
(SWITCHING 3V)
R1091
100K
Q1092
XP1501
(STABILIZER)
R1094
2700
R1095
220
R1096
6800
C1093
6V22
C1092
0.1
R1097
820
R1098
5600
A3
A4
A5
A6
A7
A8
A9
A10
R1131
150
R1132
8200
C1132
470P
C1131
0.022
C1134
39P
R1112
8200
C1114
39P
C1133
150P
C1113
150P
D1091
1SS355
R1111
150
C1112
470P
C1111
2200P
R1121
150
C1122
4700P
C1121
4700P
R1101 22K
C1101 100P
C1102 0.33
R1102 4700
C1103 0.047
R1107 2.2M
C1104 0.1
R1103 4700
R1153
12K
C1155
2.2
R1154
47K
C1108 0.1
IN 5
SCP5
COMP
FB6
IN 6
SCP6
DTC2
BIAS6
C.H6
C.L6
OUT6
BIAS5
C.H5
C.L5
FB5
SCP4
IN 4
FB4
RT
CT
SCP
DUTY
GND
SOFT
VREF
VCC
STB3
STB
DTC3
FB3
OUT5
VCC
BIAS4
GND
GATE4
C.H4
C.L4
OUT4
OUT3
C.L3
C.H3
GND
BIAS3
VCC
OUT2
C.L2
IN 3
SCP3
SCP2
FB2
IN 2
GATE1
FB1
IN 1
SCP1
BIAS1
VCC
C.H1
C.L1
OUT1
BIAS2
C.H2
IC1001
BA9734AKV
(SWITCHING REGULATOR)
A11
A12
A13
A14
R1122
6800
C1124
39P
C1123
150P
C1153
150P
C1154
82P
R1152
8200
C1107 1
R1109 10K
R1108
47K
Q1101
2SB1462J-R
(BUFFER)
QR1101
UN9214J
(ERROR VOLTAGE DET.)
C1151
8200P
C1152
8200P
R1151
150
D1101
MA8120-L
C1105
1
C1141
0.1
C1142
470P
R1141
150
C1143
150P
R1142
10K
C1144
39P
A15
A16
A17
A18
A19
A20
A21


A-LINE
(NV-DS55 ONLY)
C1394 1
Q1011 FP102 (SWITCHING 5V)
L1011 47u
R1192 0
C1012 10V3.3
C1013 330P
R1015 330
C1014 0.022
C1011 0.1
R1011 6800
R1012 82
R1010 82
R1013 390
R1014 2700
L1017 10u
L1014 10u
L1012 4.7u
C1016 1
C1018 1
C1118 6V10
C1117 1
L1029 10u
L1023 4.7u
L1026 10u
L1025 10u
L1028 10u
R1026 0
Q1022 2SK2151 (SWITCHING)
Q1021 FP102 (SWITCHING 3V)
L1021 15u
C1022 10V3.3
C1023 330P
R1025 330
C1024 0.022
C1021 0.1
R1021 2700
R1022 82
R1020 82
R1023 390
R1024 2700
L1022 4.7u
C1025 6V10
C1026 1
C1125 1
C1029 1
C1129 1
C1027 1
C1128 1
L1032 10u
L1033 4.7u
C1036 1
C1037 1
Q1031 FP102 (SWITCHING 3.1V)
L1031 56u
C1032 10V3.3
C1033 2200P
C1031 0.1
R1031 3300
R1032 82
R1030 82
R1033 330
R1034 2700
L1042 4.7u
C1045 6V10
C1046 1
L1061 33u
C1063 2.2
C1065 1
Q1061 FP102 (CAP VM)
Q1042 2SK2151 (SWITCHING)
Q1041 FP102 (SWITCHING 2V)
L1041 15u
C1042 10V3.3
C1043 330P
R1045 330
C1044 0.022
C1041 0.1
R1041 1500
R1042 82
R1040 82
R1043 510
R1044 2700
L1062 82u
C1064 2.2
C1066 1
Q1062 FP102 (CYL VM)
Q1051 2SB798A (SWITCHING)
T1051 VTP0510
D1051 SB05-05CP
D1052 1SS355
C1056 1
C1052 25V1
C1053 2200P
R1051 27K
R1052 82
R1050 82
R1053 150
R1054 2700
L1051 33u
C1055 10
L1081 33u
C1085 1
L1052 10u
C1057 1
D1151 MA8160-M
D1152 1SS355
R1155 10K
R1255 47K
C1156 6V10
R1254 47K
Q1052 2SB970X (SWITCHING 15V)
R1253 47K
R1256 47K
Q1055 2SD2216J (CCD ON H:ON)
R1251 220K
R1252 47K
C1150 1
Q1056 2SB1462J-R (CCD ON:ON)
R1005 10K
QR1004 UN9115J (SWITCHING)
R1016 0
QR1050 UN9213J (CAM -8V:ON)
Q1051 2SB970X (SWITCHING)
R1056 27K
Q1053 2SD2216J (SWITCHING)
Q1052 XP1501 (STABILIZER)
R1258 2700
R1257 3300
R1158 470
R1159 2700
R1057 11K
Q1054 XP1401 (STABILIZER)
R1058 560
R1157 2700
R1156 3300
R1059 2700
R1104 12K
C1106 0.1
IC1403 PQ20VZ1U (BL 3V)
VIN
VC
VO
VADJ
GND
R1402 1K
R1401 1K
R1403 1K
R1404 2700
R1405 10K
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A17
A18
A19
A20
A21
A22
TO MAIN CONNECTION
<TO PP1001>
PS1001
1 CYL SW
2 CYL VM
3 CYL VM
4 NOREG
5 NOREG
6
7 LIBATT+
8 MMC CLK
9 MMC SDI
10 MMC CS
11 AV OUT
12 P ON L
13 CCD ON H
14 V REF
15 DRIVE 3V
16 DAC 3V
17 DAC 3V
18 V OUT 3V
19 DIF 3V
20 DIF 3V
21 REG D3V
22 REG D3V
23 SE GND
24 NOREG GND
25 NOREG GND
26 NOREG GND
27 NOREG GND
28 D GND
29 D GND
30 D GND
31 D GND
32 D GND
33 D GND
34 A GND
35 A GND
36 A GND
37 A GND
38 A GND
39 A GND
40 REG 3.1V
41 REG 3.1V
42 E BL 6V
43 LCD 5V
44 LCD 15V
45 CAM 15V
46 CAM -8V
47 A 3V(2)
48 A 3V(2)
49 RF 3V
50 LCD 3V
51 A GND
52 A GND
53 A GND
54 A GND
55 A GND
56 A GND
57 D GND
58 D GND
59 D GND
60 D GND
61 D GND
62 D GND
63 NOREG GND
64 NOREG GND
65 NOREG GND
66 NOREG GND
67 SE GND
68 REG D2V
69 REG D2V
70 REG A5V
71 REG A5V
72 S 5V
73 SPK 5V
74 MULTI 5V
75 TRI WAVE
76 EVF BL CONT
77 INN BAT L
78 AV LCH OUT
79 AV RCH OUT
80 AV4P SW2
81 MMC IN L
82 DSC 3V
83 MMC SD0
84
85 SW NOREG
86 NOREG
87 NOREG
88 CAP VM
89 CAP VM
90 CAP SW
TO MMC/AV JACK
(Page:70/B-4)
FP1001
1 LIBATT+
2 MMC SDI
3 MMC IN L
4 MMC CLK
5 DSC 3V
6 D GND
7 MMC SD0
8 MMC CS
9 AV4P SW2
10 AV OUT
11 A GND
12 A GND
13 AV LCH OUT
14 AV4P SW1
15 AV RCH OUT
6
7
8
9
10
11
12
13
14
15
16

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

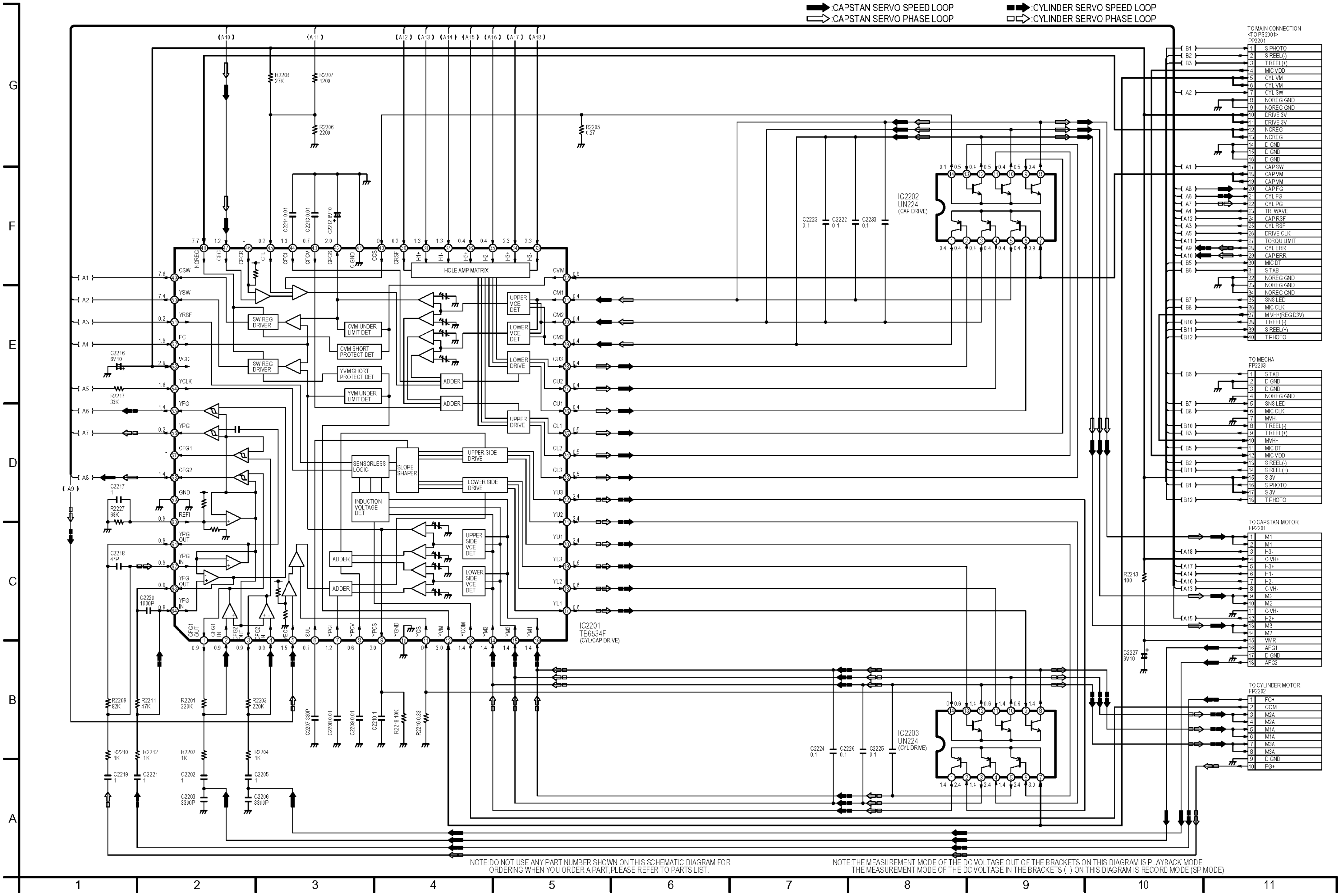
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

11.5 DRIVE SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


:CAPSTAN SERVO SPEED LOOP
:CAPSTAN SERVO PHASE LOOP
:CYLINDER SERVO SPEED LOOP
:CYLINDER SERVO PHASE LOOP
IC2201
TB6534F
(CYL/CAP DRIVE)
IC2202
UN224
(CAP DRIVE)
IC2203
UN224
(CYL DRIVE)
HOLE AMP MATRIX
UPPER VCE DET
LOWER VCE DET
LOWER DRIVE
UPPER DRIVE
ADDER
SW REG DRIVER
CVM UNDER LIMIT DET
CVM SHORT PROTECT DET
YVM SHORT PROTECT DET
YVM UNDER LIMIT DET
SENSORLESS LOGIC
SLOPE SHAPER
UPPER SIDE DRIVE
LOWER SIDE DRIVE
INDUCTION VOLTAGE DET
UPPER SIDE VCE DET
LOWER SIDE VCE DET
TO MAIN CONNECTION
<TO PS2001>
FP2201
1 S PHOTO
2 S REEL(-)
3 T REEL(+)
4 MIC VDD
5 CYL VM
6 CYL VM
7 CYL SW
8 NOREG GND
9 NOREG GND
10 DRIVE 3V
11 DRIVE 3V
12 NOREG
13 NOREG
14 D GND
15 D GND
16 D GND
17 CAP SW
18 CAP VM
19 CAP VM
20 CAP FG
21 CYL FG
22 CYL PG
23 TRI WAVE
24 CAP RSF
25 CYL RSF
26 DRIVE CLK
27 TORQU LIMIT
28 CYL ERR
29 CAP ERR
30 MIC DT
31 STAB
32 NOREG GND
33 NOREG GND
34 NOREG GND
35 SNS LED
36 MIC CLK
37 M VH+(REG D3V)
38 T REEL(-)
39 S REEL(+)
40 T PHOTO
TO MECHA
FP2203
1 STAB
2 D GND
3 D GND
4 NOREG GND
5 SNS LED
6 MIC CLK
7 MVH-
8 T REEL(-)
9 T REEL(+)
10 MVH+
11 MIC DT
12 MIC VDD
13 S REEL(-)
14 S REEL(+)
15 S 3V
16 S PHOTO
17 S 3V
18 T PHOTO
TO CAPSTAN MOTOR
FP2201
1 M1
2 M1
3 H3-
4 C VH+
5 H3+
6 H1-
7 H2-
8 C VH-
9 M2
10 M2
11 C VH-
12 H2+
13 M3
14 M3
15 VMR
16 AFG1
17 D GND
18 AFG2
TO CYLINDER MOTOR
FP2202
1 FG+
2 COM
3 M2A
4 M2A
5 M1A
6 M1A
7 M3A
8 M3A
9 D GND
10 PG+
R2208 27K
R2207 1200
R2206 2200
R2205 0.27
R2217 33K
R2227 68K
R2209 82K
R2211 47K
R2201 220K
R2203 220K
R2210 1K
R2212 1K
R2202 1K
R2204 1K
R2213 100
R2218 10K
R2216 0.33
C2214 0.01
C2213 0.01
C2212 6V10
C2216 6V10
C2217 1
C2218 47P
C2220 1000P
C2219 1
C2221 1
C2202 1
C2205 1
C2203 3300P
C2206 3300P
C2207 330P
C2208 0.01
C2209 0.01
C2210 1
C2223 0.1
C2222 0.1
C2233 0.1
C2224 0.1
C2226 0.1
C2225 0.1
C2227 6V10
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

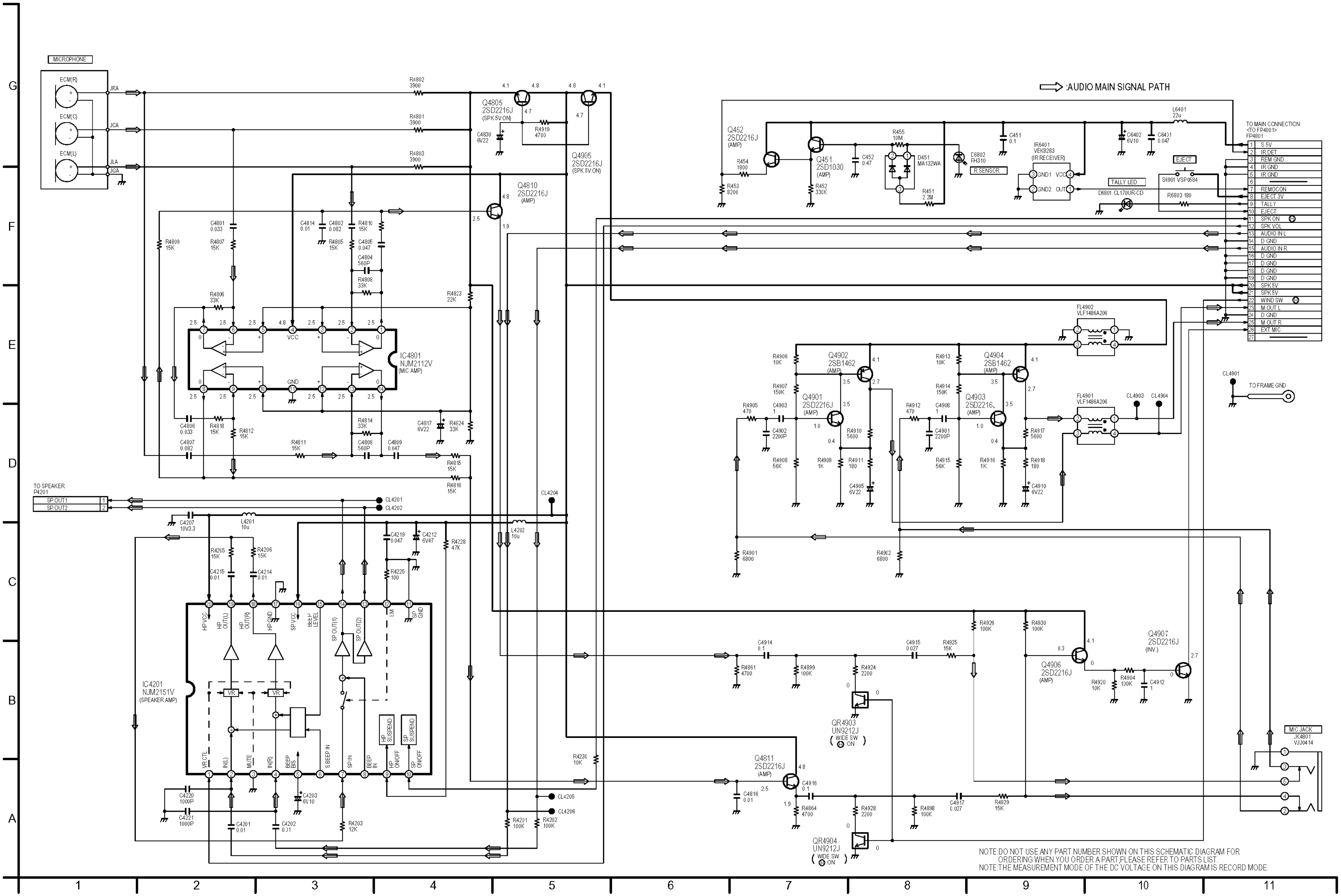
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE (SP MODE)

11.6 MIC UNIT SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


:AUDIO MAIN SIGNAL PATH
MICROPHONE
ECM(R)
ECM(C)
ECM(L)
JRA
JCA
JLA
JGA
R4802 3900
R4801 3900
R4803 3900
Q4805 2SD2216J (SPK 5V ON)
Q4905 2SD2216J (SPK 5V ON)
R4919 4700
C4830 6V22
Q4810 2SD2216J (AMP)
IC4801 NJM2112V (MIC AMP)
VCC
GND
R4809 15K
R4807 15K
C4801 0.033
C4814 0.01
C4802 0.082
R4805 15K
R4810 15K
C4805 0.047
C4804 560P
R4808 33K
R4806 33K
R4823 22K
C4806 0.033
R4818 15K
C4807 0.082
R4812 15K
R4811 15K
R4814 33K
C4808 560P
C4809 0.047
C4817 6V22
R4824 33K
R4815 15K
R4816 15K
TO SPEAKER P4201
SP OUT1
SP OUT2
CL4201
CL4202
CL4204
C4207 10V3.3
L4201 10u
L4202 10u
R4205 15K
R4206 15K
C4215 0.01
C4214 0.01
C4219 0.047
C4212 6V47
R4228 47K
R4225 100
IC4201 NJM2151V (SPEAKER AMP)
HP VCC
HP OUT(L)
HP OUT(R)
HP GND
SP VCC
BEEP LEVEL
SP OUT(1)
SP OUT(2)
LM
SP GND
VR CTL
IN(L)
MUTE
IN(R)
BEEP BIS
S BEEP IN
SP IN
BEEP IN
HP ON/OFF
SP ON/OFF
HP SUSPEND
SP SUSPEND
VR
C4220 1000P
C4221 1000P
C4201 0.01
C4202 0.01
C4203 6V10
R4203 12K
R4230 10K
CL4205
CL4206
R4201 100K
R4202 100K
Q452 2SD2216J (AMP)
R454 1800
R453 8200
Q451 2SD1030 (AMP)
R452 330K
C452 0.47
R455 10M
D451 MA132WA
R451 2.2M
D6802 FH310
R SENSOR
C451 0.1
IR6401 VEK8283 (IR RECEIVER)
GND1
GND2
VCC
OUT
C6402 6V10
C6401 0.047
L6401 22u
EJECT
S6901 VSP0584
TALLY LED
D6801 CL170UR-CD
R6803 180
TO MAIN CONNECTION <TO FP4001> FP4801
1 S 5V
2 IR DET
3 REM GND
4 IR GND
5 IR GND
6
7 REMOCON
8 EJECT 3V
9 TALLY
10 EJECT
11 SPK ON
12 SPK VOL
13 AUDIO IN L
14 D GND
15 AUDIO IN R
16 D GND
17 D GND
18 D GND
19 D GND
20 SPK 5V
21 SPK 5V
22 WIND SW
23 M OUT L
24 D GND
25 M OUT R
26 EXT MIC
27
FL4902 VLF1486A206
FL4901 VLF1486A206
Q4902 2SB1462 (AMP)
Q4901 2SD2216J (AMP)
Q4904 2SB1462 (AMP)
Q4903 2SD2216J (AMP)
R4906 10K
R4907 150K
R4905 470
C4903 1
C4902 2200P
R4908 56K
R4909 1K
R4910 5600
R4911 180
C4905 6V22
R4913 10K
R4914 150K
R4912 470
C4908 1
C4901 2200P
R4915 56K
R4916 1K
R4917 5600
R4918 180
C4910 6V22
CL4903
CL4904
CL4901
TO FRAME GND
R4901 6800
R4902 6800
C4914 0.1
R4861 4700
R4899 100K
R4924 2200
C4915 0.027
R4925 15K
R4926 100K
R4930 100K
Q4906 2SD2216J (AMP)
R4920 10K
R4904 100K
C4912 1
Q4907 2SD2216J (INV.)
QR4903 UN9212J (WIDE SW ON)
Q4811 2SD2216J (AMP)
C4816 0.01
C4916 0.1
R4864 4700
R4928 2200
R4898 100K
C4917 0.027
R4929 15K
QR4904 UN9212J (WIDE SW ON)
MIC JACK JK4801 VJJ0414
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

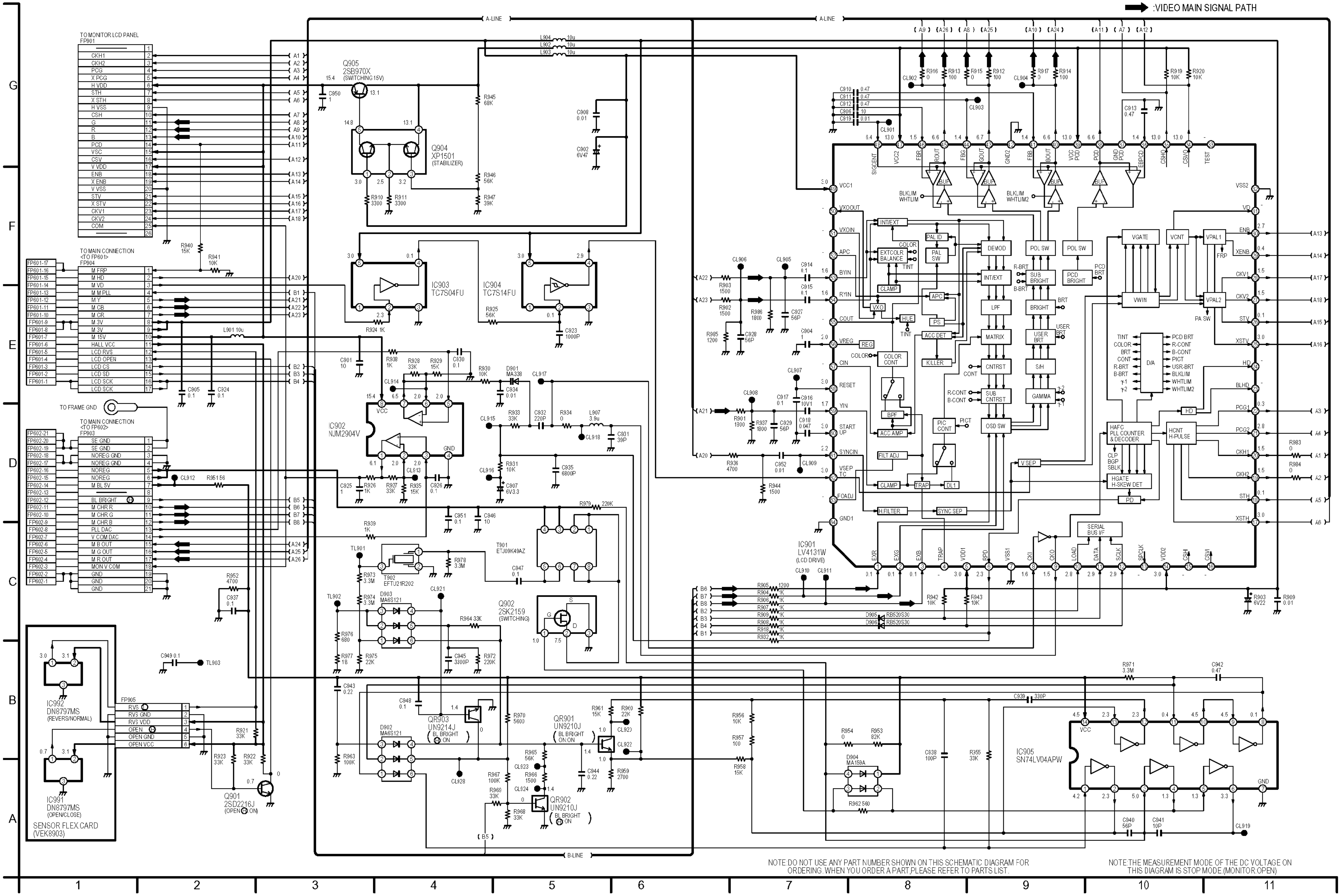
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS RECORD MODE.

11.7 MONITOR& SENSOR FLEX. CARD SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


:VIDEO MAIN SIGNAL PATH
A-LINE
B-LINE
TO MONITOR LCD PANEL
FP901
CKH1
CKH2
PCG
X PCG
H VDD
STH
X STH
H VSS
CSH
G
R
B
PCD
VSC
CSV
V VDD
ENB
X ENB
V VSS
STV
X STV
CKV1
CKV2
COM
TO MAIN CONNECTION
<TO FP601>
FP904
M FRP
M HD
M VD
M PLL
M Y
M CB
M CR
M 3V
M 15V
HALL VCC
LCD RVS
LCD OPEN
LCD CS
LCD SD
LCD SCK
TO FRAME GND
<TO FP602>
FP903
SE GND
NOREG GND
NOREG
M BL 5V
BL BRIGHT
M CHR R
M CHR G
M CHR B
PLL DAC
V COM DAC
M B OUT
M G OUT
M R OUT
MON V COM
GND
Q905
2SB970X
(SWITCHING 15V)
Q904
XP1501
(STABILIZER)
IC903
TC7S04FU
IC904
TC7S14FU
IC902
NJM2904V
T901
ETJ09K49AZ
T902
EFTU21R202
Q902
2SK2159
(SWITCHING)
D901
MA338
D902
MA6S121
D903
MA6S121
QR903
UN9214J
(BL BRIGHT ON)
QR901
UN9210J
(BL BRIGHT ON:ON)
QR902
UN9210J
(BL BRIGHT ON)
IC901
LV4131W
(LCD DRIVE)
D905 RB520S30
D906 RB520S30
D904
MA159A
IC905
SN74LV04APW
IC992
DN8797MS
(REVERS/NORMAL)
IC991
DN8797MS
(OPEN/CLOSE)
SENSOR FLEX CARD
(VEK8903)
FP905
RVS
RVS GND
RVS VDD
OPEN
OPEN GND
OPEN VCC
Q901
2SD2216J
(OPEN ON)
INT/EXT
EXTCOLOR BALANCE
PAL ID
PAL SW
CLAMP
VXO
HUE
APC
PS
ACC DET
KILLER
REG
COLOR CONT
BPF
ACC AMP
FILT ADJ
TRAP
DL1
PIC CONT
DEMOD
LPF
MATRIX
CNTRST
SUB CNTRST
OSD SW
POL SW
SUB BRIGHT
BRIGHT
USER BRT
S/H
GAMMA
PCD BRIGHT
VGATE
VWIN
VCNT
VPAL1
VPAL2
D/A
HAFC PLL COUNTER & DECODER
HCNT H-PULSE
HGATE H-SKEW DET
PD
V SEP
H FILTER
SYNC SEP
SERIAL BUS I/F
BUF
BLKLIM WHTLIM
BLKLIM WHTLIM2
VCC1
VXOOUT
VXOIN
APC
BYIN
RYIN
COUT
VREG
CIN
RESET
YIN
START UP
SYNCIN
VSEP TC
FOADJ
GND1
SIGCENT
VCC2
FBR
ROUT
FBG
GOUT
GND2
FBB
BOUT
VCC PCD
PCD
GND PCD
EBPCD
CSHO
CSVO
TEST
VSS2
VD
ENB
XENB
CKV1
CKV2
STV
XSTV
HD
BLHD
PCG1
PCG2
CKH1
CKH2
STH
XSTH
EXR
EXG
EXB
VDD1
RPD
VSS1
CKI
CKO
LOAD
DATA
SCLK
SPCLK
VDD2
CSHI
CSVI
TINT
COLOR
BRT
CONT
R-BRT
B-BRT
PCD BRT
R-CONT
B-CONT
PICT
USR-BRT
BLKLIM
WHTLIM
WHTLIM2
FRP
PA SW
VCC
GND

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

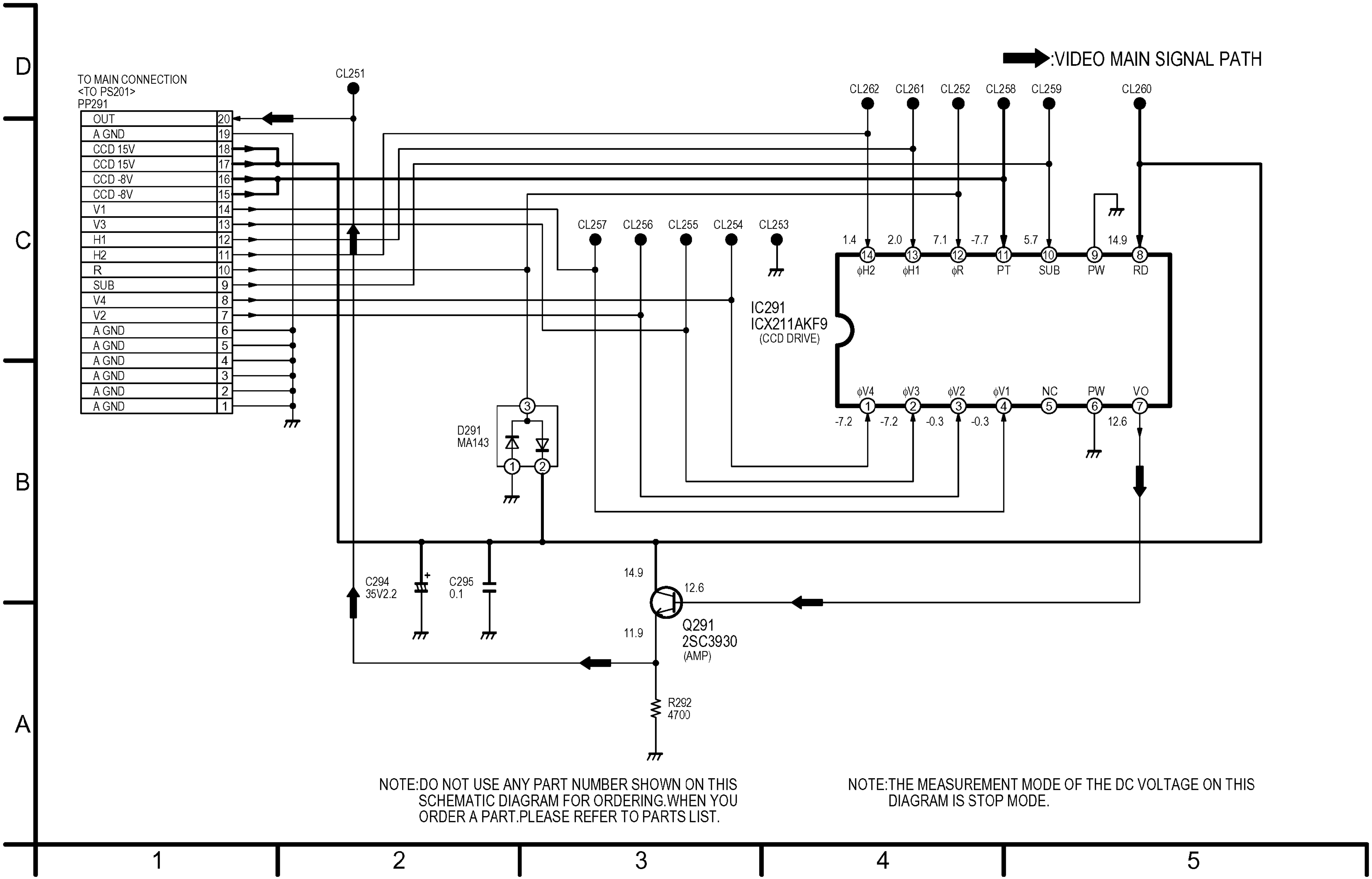
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.(MONITOR:OPEN)

11.8 CCD FLEX. CARD SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


:VIDEO MAIN SIGNAL PATH
TO MAIN CONNECTION
<TO PS201>
PP291
OUT 20
A GND 19
CCD 15V 18
CCD 15V 17
CCD -8V 16
CCD -8V 15
V1 14
V3 13
H1 12
H2 11
R 10
SUB 9
V4 8
V2 7
A GND 6
A GND 5
A GND 4
A GND 3
A GND 2
A GND 1
CL251
CL262
CL261
CL252
CL258
CL259
CL260
CL257
CL256
CL255
CL254
CL253
1.4
2.0
7.1
-7.7
5.7
14.9
φH2
φH1
φR
PT
SUB
PW
RD
IC291
ICX211AKF9
(CCD DRIVE)
φV4
φV3
φV2
φV1
NC
PW
VO
-7.2
-7.2
-0.3
-0.3
12.6
D291
MA143
C294
35V2.2
C295
0.1
14.9
12.6
11.9
Q291
2SC3930
(AMP)
R292
4700
D
C
B
A
1
2
3
4
5

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS
SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU
ORDER A PART.PLEASE REFER TO PARTS LIST.

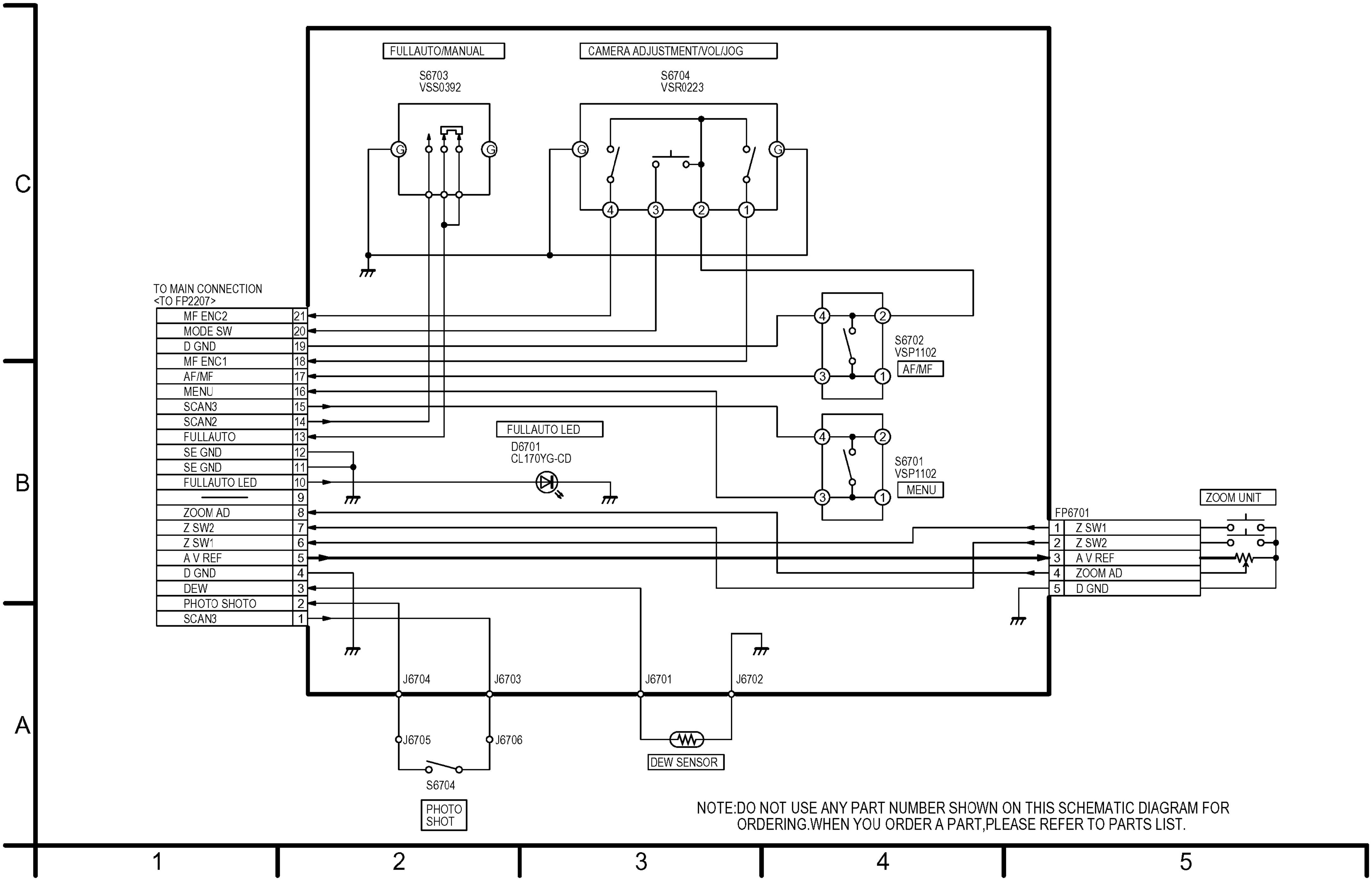
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS
DIAGRAM IS STOP MODE.

11.9 TOP OPERATION SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


FULLAUTO/MANUAL
S6703
VSS0392
CAMERA ADJUSTMENT/VOL/JOG
S6704
VSR0223
G
TO MAIN CONNECTION
<TO FP2207>
MF ENC2
MODE SW
D GND
MF ENC1
AF/MF
MENU
SCAN3
SCAN2
FULLAUTO
SE GND
SE GND
FULLAUTO LED
ZOOM AD
Z SW2
Z SW1
A V REF
D GND
DEW
PHOTO SHOTO
SCAN3
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
S6702
VSP1102
AF/MF
S6701
VSP1102
MENU
FULLAUTO LED
D6701
CL170YG-CD
FP6701
Z SW1
Z SW2
A V REF
ZOOM AD
D GND
ZOOM UNIT
J6704
J6703
J6701
J6702
J6705
J6706
S6704
PHOTO
SHOT
DEW SENSOR
A
B
C
1
2
3
4
5

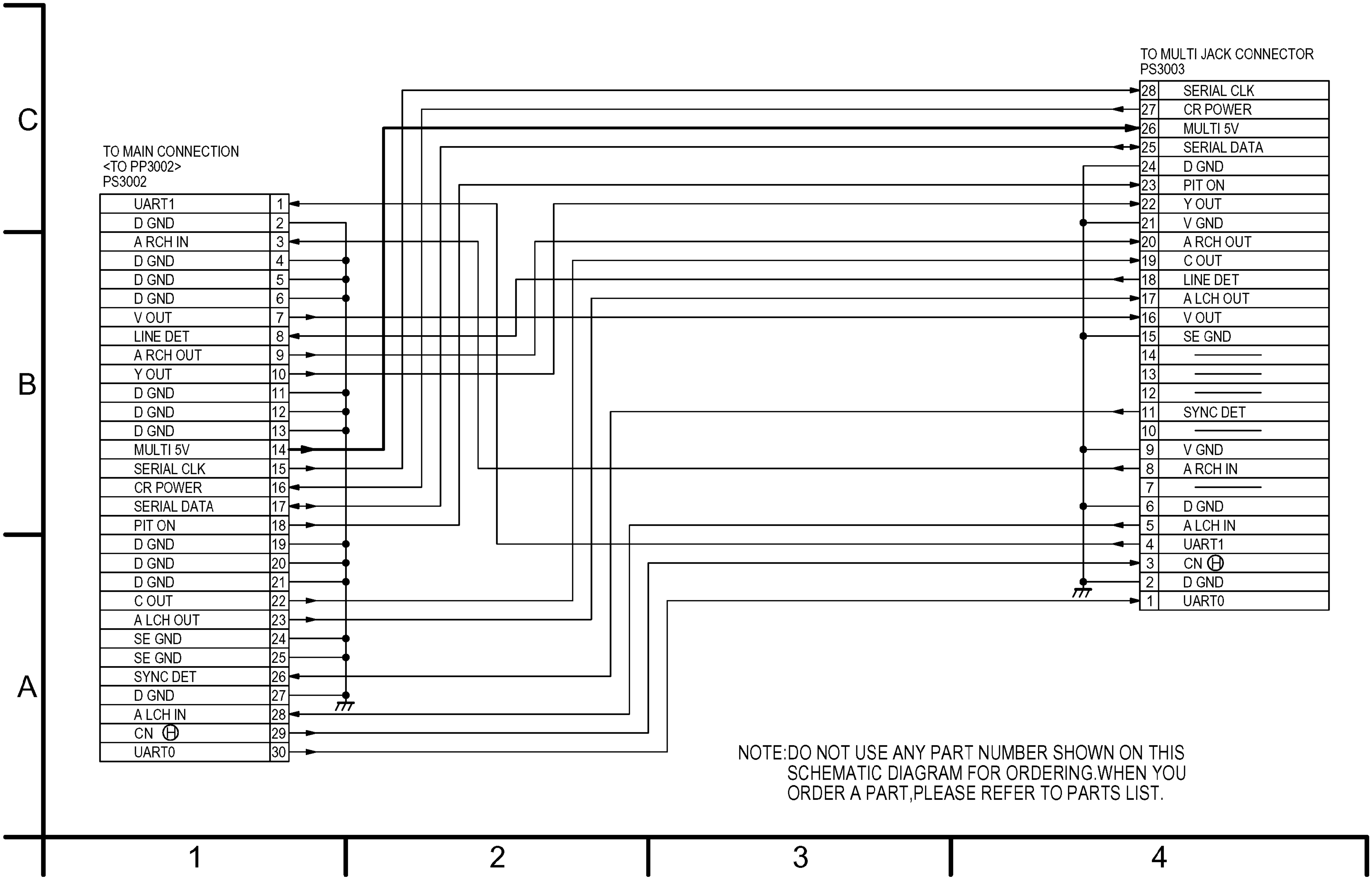
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

11.10 MULTI JACK SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


TO MAIN CONNECTION
<TO PP3002>
PS3002
1 UART1
2 D GND
3 A RCH IN
4 D GND
5 D GND
6 D GND
7 V OUT
8 LINE DET
9 A RCH OUT
10 Y OUT
11 D GND
12 D GND
13 D GND
14 MULTI 5V
15 SERIAL CLK
16 CR POWER
17 SERIAL DATA
18 PIT ON
19 D GND
20 D GND
21 D GND
22 C OUT
23 A LCH OUT
24 SE GND
25 SE GND
26 SYNC DET
27 D GND
28 A LCH IN
29 CN Ⓗ
30 UART0
TO MULTI JACK CONNECTOR
PS3003
28 SERIAL CLK
27 CR POWER
26 MULTI 5V
25 SERIAL DATA
24 D GND
23 PIT ON
22 Y OUT
21 V GND
20 A RCH OUT
19 C OUT
18 LINE DET
17 A LCH OUT
16 V OUT
15 SE GND
14
13
12
11 SYNC DET
10
9 V GND
8 A RCH IN
7
6 D GND
5 A LCH IN
4 UART1
3 CN Ⓗ
2 D GND
1 UART0
A
B
C
1
2
3
4

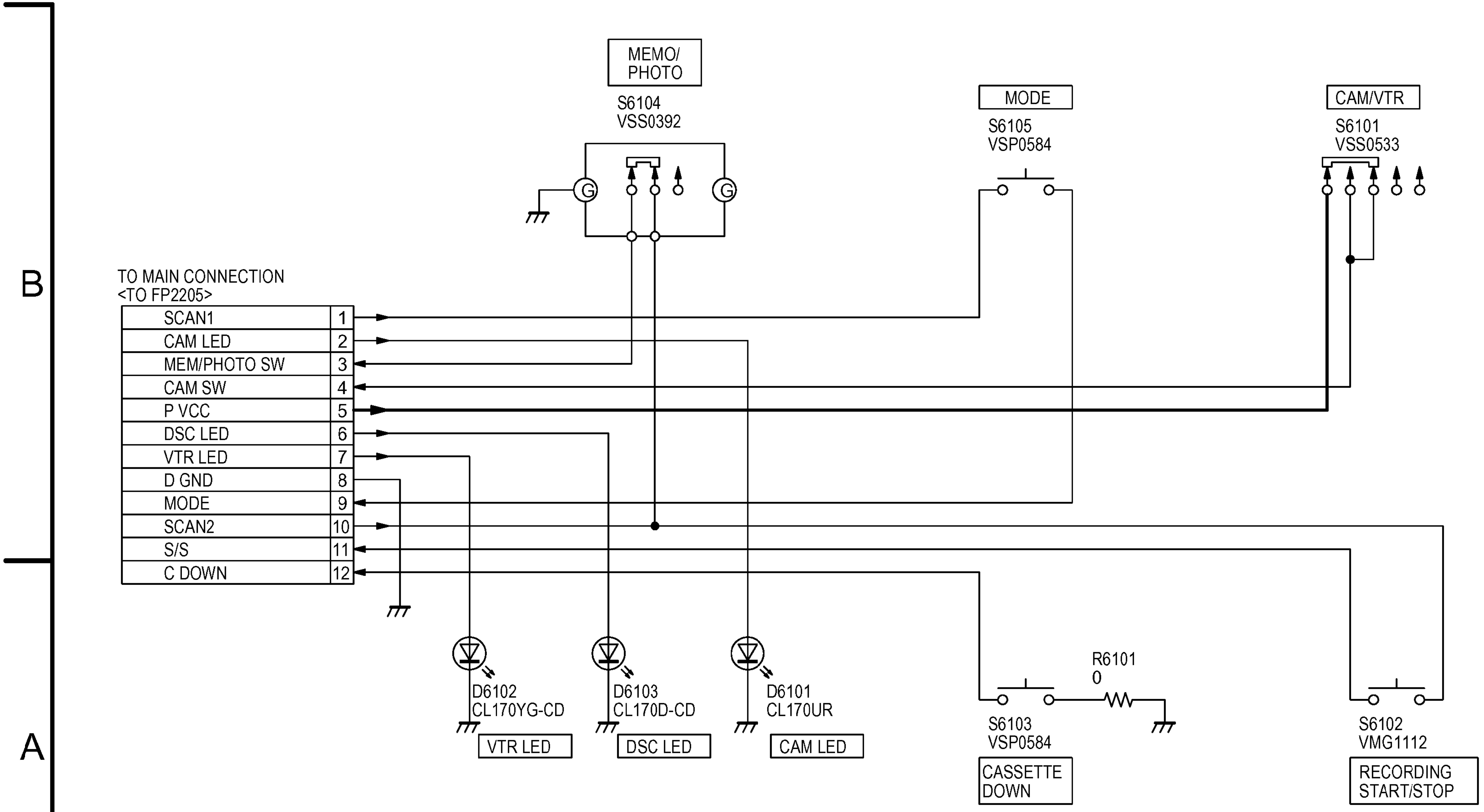
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS
SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU
ORDER A PART,PLEASE REFER TO PARTS LIST.

11.11 S/S POWER FLEX. CARD SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


MEMO/ PHOTO
S6104
VSS0392
G
G
MODE
S6105
VSP0584
CAM/VTR
S6101
VSS0533
TO MAIN CONNECTION
<TO FP2205>
SCAN1 1
CAM LED 2
MEM/PHOTO SW 3
CAM SW 4
P VCC 5
DSC LED 6
VTR LED 7
D GND 8
MODE 9
SCAN2 10
S/S 11
C DOWN 12
D6102
CL170YG-CD
VTR LED
D6103
CL170D-CD
DSC LED
D6101
CL170UR
CAM LED
S6103
VSP0584
CASSETTE DOWN
R6101
0
S6102
VMG1112
RECORDING START/STOP
B
A
1
2
3
4

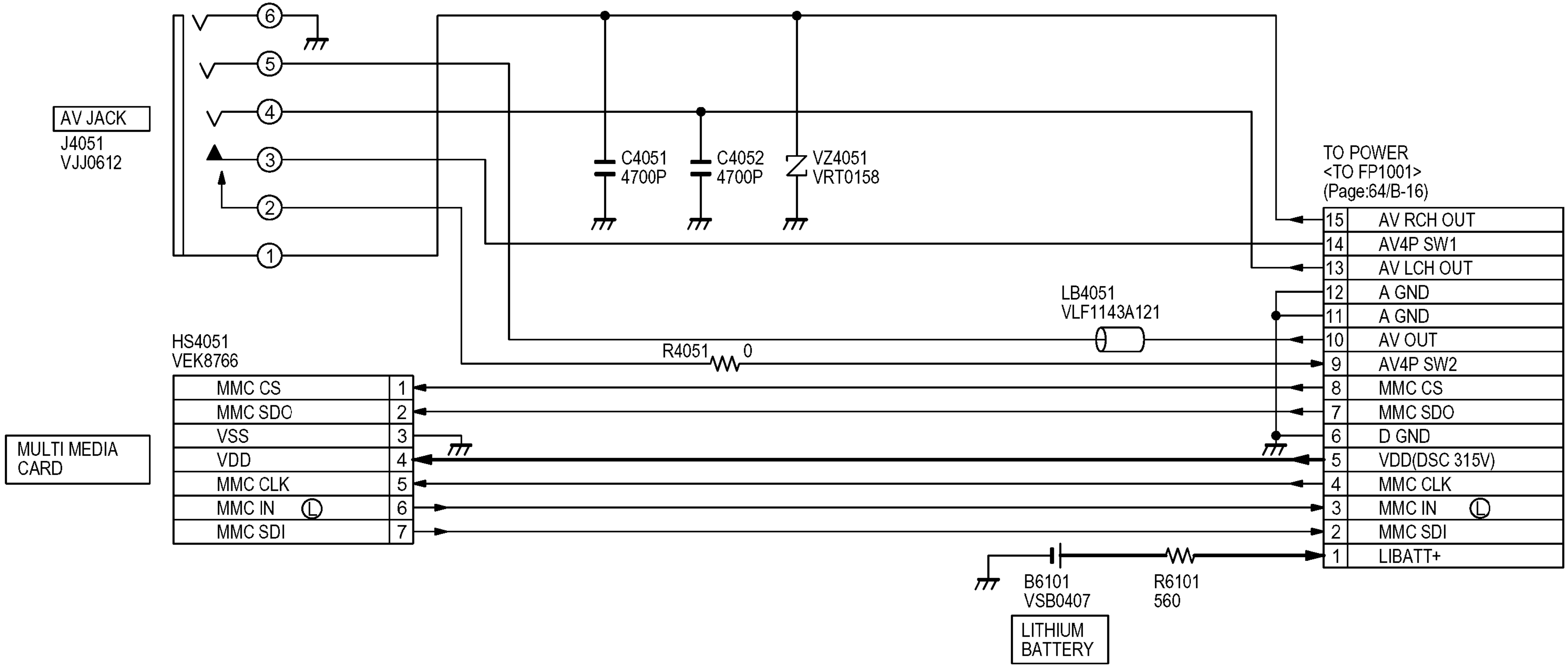
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

11.12 MMC/AV JACK SCHEMATAIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT



AV JACK
J4051
VJJ0612
①
②
③
④
⑤
⑥
C4051
4700P
C4052
4700P
VZ4051
VRT0158
TO POWER
<TO FP1001>
(Page:64/B-16)
15 AV RCH OUT
14 AV4P SW1
13 AV LCH OUT
12 A GND
11 A GND
10 AV OUT
9 AV4P SW2
8 MMC CS
7 MMC SDO
6 D GND
5 VDD(DSC 315V)
4 MMC CLK
3 MMC IN Ⓛ
2 MMC SDI
1 LIBATT+
LB4051
VLF1143A121
R4051
0
HS4051
VEK8766
MULTI MEDIA
CARD
MMC CS 1
MMC SDO 2
VSS 3
VDD 4
MMC CLK 5
MMC IN Ⓛ 6
MMC SDI 7
B6101
VSB0407
LITHIUM
BATTERY
R6101
560
C
B
A
1
2
3
4

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR
ORDERING WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON
THIS DIAGRAM IS STOP MODE.

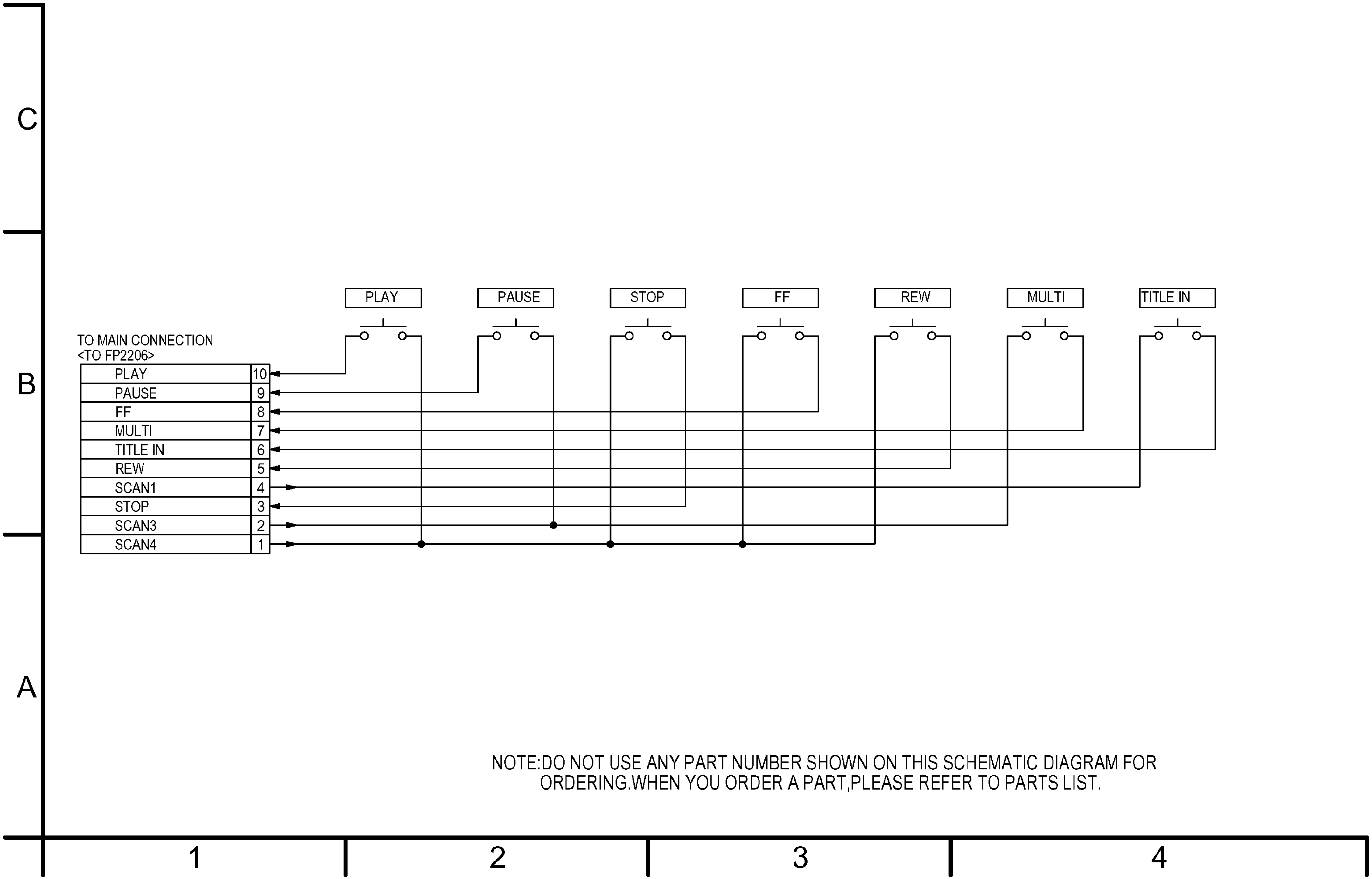
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

11.13 SIDE OPERATION UNIT SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


C
B
A
1
2
3
4
TO MAIN CONNECTION
<TO FP2206>
PLAY 10
PAUSE 9
FF 8
MULTI 7
TITLE IN 6
REW 5
SCAN1 4
STOP 3
SCAN3 2
SCAN4 1
PLAY
PAUSE
STOP
FF
REW
MULTI
TITLE IN

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

12 CIRCUIT BOARD ASSEMBLIES

TOP PREVIOUS NEXT

12.1 POWER C.B.A.

12.2 DRIVE C.B.A.

12.3 MIC UNIT

12.4 MONITOR C.B.A.

12.5 E.V.F. C.B.A.

12.6 CCD FLEX. CARD C.B.A.

12.7 MULTI JACK C.B.A.

•@

TOP PREVIOUS NEXT

12.1 POWER C.B.A.

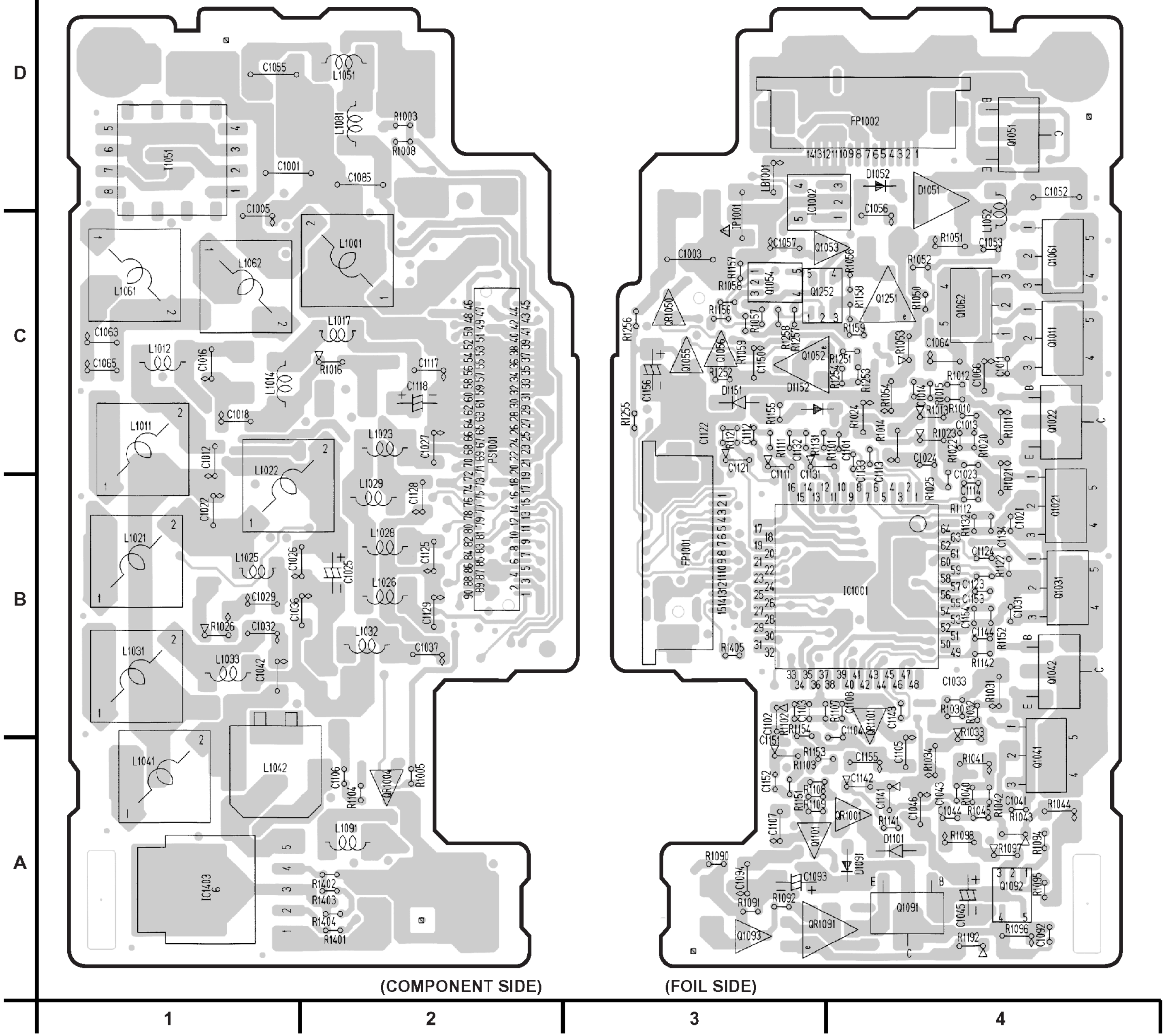
TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT

NOTE:MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK △ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



(COMPONENT SIDE)

(FOIL SIDE)

Power C.B.A.

Integrated Circuit	
IC1001	B-4
IC1002	D-3
IC1403	A-1
Transistor	
Q1011	C-4
Q1021	B-4
Q1022	C-4
Q1031	B-4
Q1041	A-4
Q1042	B-4
Q1051	D-4
Q1052	C-3
Q1053	C-3
Q1054	C-3
Q1055	C-3
Q1056	C-3
Q1061	C-4
Q1062	C-4
Q1091	A-4
Q1092	A-4
Q1093	A-3
Q1101	A-3
Q1251	C-4
Q1252	C-3
Transistor & Resistor	
QR1001	A-4
QR1004	A-2
QR1050	C-3
QR1091	A-4
QR1101	B-4
Diode	
D1051	D-4
D1052	D-4
D1091	A-4
D1101	A-4
D1151	C-3
D1152	C-4
Connector	
FP1001	B-3
FP1002	D-4
PS1001	C-2
IP	
IP1001	C-3
Transformer	
T1051	D-1
Coil	
L1001	C-2
L1011	C-1
L1012	C-1
L1014	C-1
L1017	C-2
L1021	B-1
L1022	C-1
L1023	C-2
L1025	B-1
L1026	B-2
L1028	B-2
L1029	B-2
L1031	B-1
L1032	B-2
L1033	B-1
L1041	A-1
L1042	A-1
L1051	D-2
L1052	D-3
L1061	C-1
L1062	C-1
L1081	D-2
L1091	A-2
LB1001	D-3
Capacitor	
C1001	D-1
C1003	C-3
C1005	D-1
C1011	C-4
C1012	C-1
C1013	C-4
C1014	C-4
C1016	C-1
C1018	C-1
C1021	B-4
C1022	B-1
C1023	B-4
C1024	C-4
C1025	B-2
C1026	B-2
C1027	C-2
C1029	B-1
C1031	B-4
C1032	B-1
C1033	B-4
C1036	B-2
C1037	B-2
C1041	A-4
C1042	B-1
C1043	A-4
C1044	A-4
C1045	A-4
C1046	A-4
C1052	D-4
C1053	C-4
C1055	D-1
C1056	C-4
C1057	C-3
C1063	C-1
C1064	C-4
C1065	C-1
C1066	C-4
C1085	D-2
C1092	A-4
C1093	A-3
C1094	A-3
C1101	C-4
C1102	B-3
C1103	B-3
C1104	A-4
C1105	A-4
C1106	A-2
C1107	A-3
C1108	B-4
C1111	C-3
C1112	C-3
C1113	B-4
C1114	B-4
C1117	C-2
C1118	C-2
C1121	C-3
C1122	C-3
C1123	B-4
C1124	B-4
C1125	B-2
C1128	B-2
C1129	B-2
C1131	C-3
C1132	C-3
C1133	C-4
C1134	B-4
C1141	A-4
C1142	A-4
C1143	B-4
C1144	B-4
C1150	C-3
C1151	A-3
C1152	B-4
C1153	A-3
C1154	B-4
C1155	A-4
C1156	C-3
Resistor	
R1003	D-2
R1005	A-2
R1008	D-2
R1010	C-4
R1011	C-4
R1012	C-4
R1013	C-4
R1014	C-4
R1015	C-4
R1016	C-2
R1020	C-4
R1021	B-4
R1022	C-4
R1023	C-4
R1024	C-4
R1025	B-4
R1026	B-1
R1030	B-4
R1031	B-4
R1032	B-4
R1033	A-4
R1034	A-4
R1040	A-4
R1041	A-4
R1042	A-4
R1043	A-4
R1044	A-4
R1045	A-4
R1050	C-4
R1051	C-4
R1052	C-4
R1053	C-4
R1054	C-4
R1056	C-4
R1057	C-3
R1058	C-3
R1059	C-3
R1090	A-3
R1091	A-3
R1092	A-3
R1094	A-4
R1095	A-4
R1096	A-4
R1097	A-4
R1098	A-4
R1101	C-3
R1102	B-3
R1103	A-3
R1104	A-2
R1107	B-4
R1108	A-3
R1109	A-3
R1111	C-3
R1112	B-4
R1121	C-3
R1122	B-4
R1131	C-3
R1132	B-4
R1141	A-4
R1142	B-4
R1151	A-3
R1152	B-4
R1153	A-3
R1154	A-3
R1155	C-3
R1156	C-3
R1157	C-3
R1158	C-4
R1159	C-4
R1192	A-4
R1251	C-4
R1252	C-3
R1253	C-4
R1254	C-4
R1255	C-3
R1256	C-3
R1257	C-3
R1258	C-3
R1401	A-2
R1402	A-2
R1403	A-2
R1404	A-2
R1405	B-3

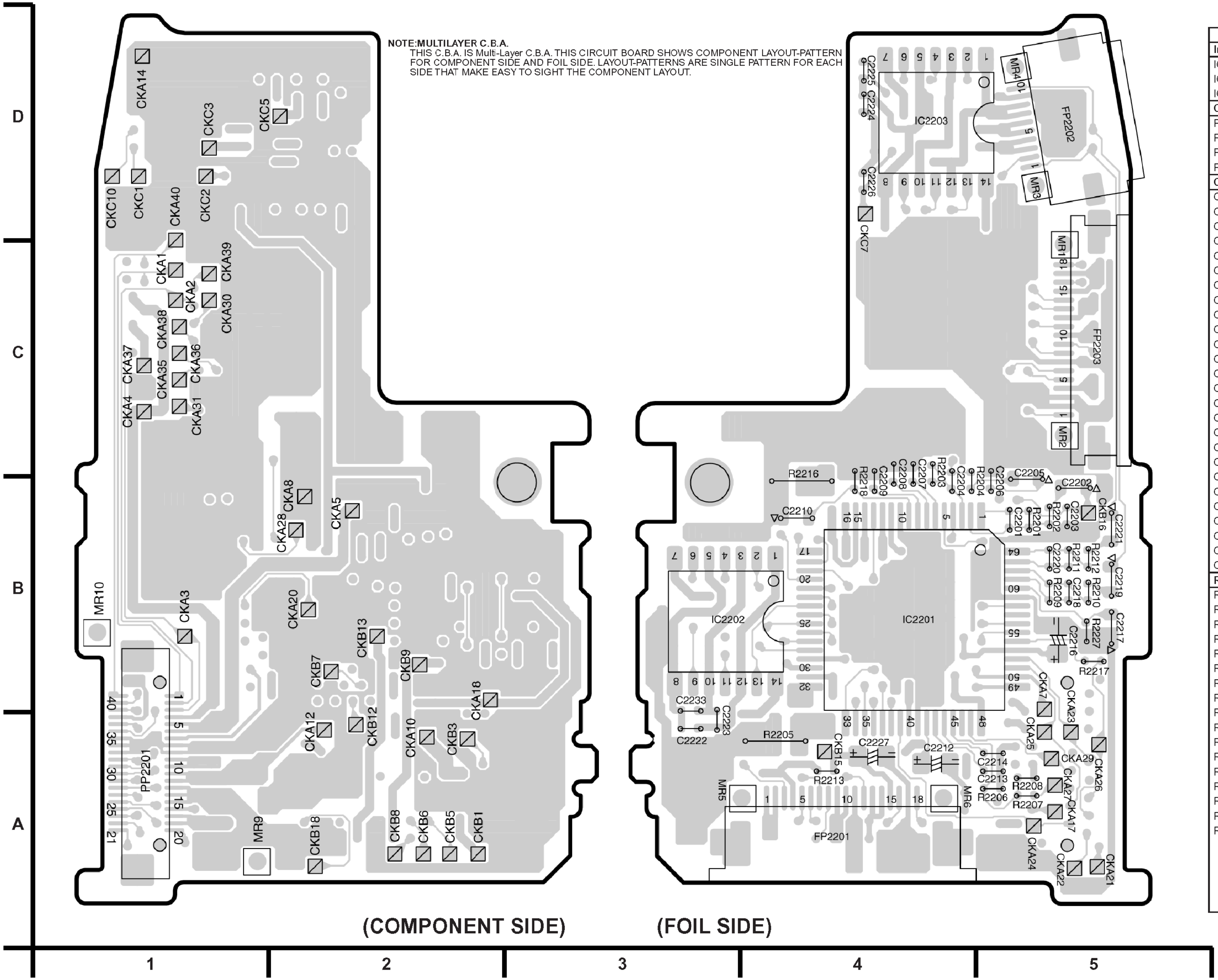
12.2 DRIVE C.B.A.

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT

NOTE:MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.


D
C
B
A
1
2
3
4
5
(COMPONENT SIDE)
(FOIL SIDE)
CKA14
CKC10
CKC1
CKA40
CKC2
CKC3
CKC5
CKA1
CKA39
CKA2
CKA30
CKA38
CKA36
CKA37
CKA35
CKA4
CKA31
CKA8
CKA28
CKA5
MR10
CKA3
PP2201
MR9
CKA20
CKB13
CKB7
CKB9
CKA12
CKB12
CKA10
CKB3
CKA18
CKB18
CKB8
CKB6
CKB5
CKB1
IC2203
FP2202
MR4
MR3
C2225
C2224
C2226
CKC7
MR1
MR2
FP2203
R2216
C2210
IC2202
C2233
C2222
C2223
R2205
R2218
C2209
C2208
C2207
R2203
C2204
R2204
C2206
C2205
C2202
C2201
R2201
R2202
C2203
CKB16
C2221
C2220
R2211
R2212
C2219
R2209
C2218
R2210
C2216
R2227
C2217
R2217
IC2201
CKA7
CKA23
CKA25
CKA29
CKA26
CKB15
C2227
R2213
C2212
C2214
C2213
R2208
R2206
R2207
CKA27
CKA17
CKA24
CKA22
CKA21
MR5
MR6
FP2201

Drive C.B.A.	
Integrated Circuit	
IC2201	B4
IC2202	B3
IC2203	D4
Connector	
FP2201	A4
FP2202	D5
FP2203	D5
PP2201	A1
Capacitor	
C2201	B-5
C2202	B-5
C2203	B-5
C2204	B-4
C2205	B-5
C2206	B-5
C2207	B-4
C2208	B-4
C2209	B-4
C2210	B-4
C2212	A-4
C2213	A-5
C2214	A-5
C2216	B-5
C2217	B-5
C2218	B-5
C2219	B-5
C2220	B-5
C2221	B-5
C2222	A-3
C2223	A-3
C2224	D-4
C2225	D-4
C2226	D-4
C2227	A-4
C2233	B-3
Resistor	
R2201	B-5
R2202	B-5
R2203	B-4
R2204	B-5
R2205	A-4
R2206	A-5
R2207	A-5
R2208	A-5
R2209	B-5
R2210	B-5
R2211	B-5
R2212	B-5
R2213	A-4
R2216	B-4
R2217	B-5
R2218	B-4
R2227	B-5

12.3 MIC UNIT

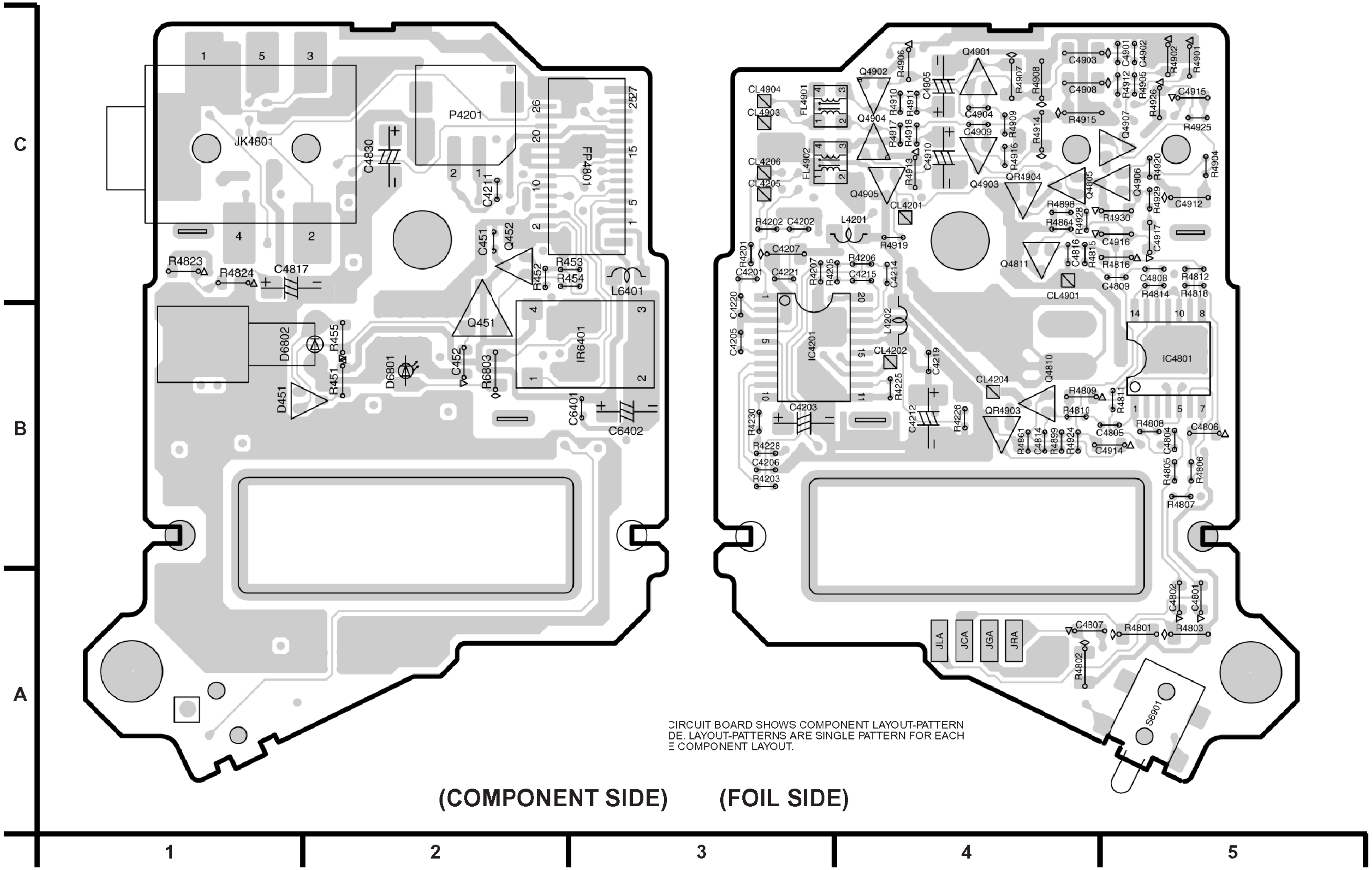
TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT

Mic Unit

Integrated Circuit		Q4904	C-4	**Test Point**		D6802	B-1	**Capacitor**		C4215	C-4	C4814	B-4	C4912	C-5	R455	B-2	R4802	A-4	R4816	C-5	R4906	C-4	R4918	C-4
IC4201	B-3	Q4905	C-4	CL4201	C-4	**Filter**		C451	C-2	C4219	B-4	C4816	C-4	C4914	B-4	R4201	C-3	R4803	A-5	R4818	C-5	R4907	C-4	R4919	C-4
IC4801	B-5	Q4906	C-5	CL4202	B-4	FL4901	C-3	C452	B-2	C4220	B-3	C4817	C-1	C4915	C-5	R4202	C-3	R4805	B-5	R4823	C-1	R4908	C-4	R4920	C-5
Transistor		Q4907	C-5	CL4204	B-4	FL4902	C-3	C4201	C-3	C4221	C-3	C4830	C-2	C4916	C-5	R4203	B-3	R4806	B-5	R4824	C-1	R4909	C-4	R4924	B-4
Q451	B-2	**Transistor & Resistor**		CL4205	C-3	**IR**		C4202	C-3	C4801	A-5	C4901	C-5	C4917	C-5	R4205	C-3	R4807	B-5	R4861	B-4	R4910	C-4	R4925	C-5
Q452	C-2	QR4903	B-4	CL4206	C-3	IR6401	B-3	C4203	B-3	C4802	A-5	C4902	C-5	C6401	B-3	R4206	C-4	R4808	B-5	R4864	C-4	R4911	C-4	R4926	C-5
Q4805	C-4	QR4904	C-4	CL4901	C-4	**Coil**		C4205	B-3	C4804	B-5	C4903	C-4	C6402	B-3	R4207	C-3	R4809	B-4	R4898	C-4	R4912	C-5	R4928	C-4
Q4810	B-4	**Connector**		CL4903	C-3	L4201	C-3	C4206	B-3	C4805	B-4	C4904	C-4	**Resistor**		R4225	B-4	R4810	B-4	R4899	B-4	R4913	C-4	R4929	C-5
Q4811	C-4	FP4801	C-3	CL4904	C-3	L4202	B-4	C4207	C-3	C4806	B-5	C4905	C-4	R451	B-2	R4226	B-4	R4811	B-5	R4901	C-5	R4914	C-4	R4930	C-5
Q4901	C-4	JK4801	C-1	**Diode**		L6401	C-3	C4211	C-2	C4807	A-4	C4908	C-4	R452	C-2	R4228	B-3	R4812	C-5	R4902	C-5	R4915	C-4	R6803	B-2
Q4902	C-4	P4201	C-2	D451	B-1	**Switch**		C4212	B-4	C4808	C-5	C4909	C-4	R453	C-2	R4230	B-3	R4814	C-5	R4904	C-5	R4916	C-4		
Q4903	C-4			D6801	B-2	S6901	A-5	C4214	C-4	C4809	C-5	C4910	C-4	R454	C-2	R4801	A-5	R4815	C-4	R4905	C-5	R4917	C-4		


C
B
A
1
2
3
4
5
JK4801
P4201
FP4801
C4830
C4211
C451
Q452
R453
R454
R452
L6401
Q451
IR6401
C6401
C6402
R4823
R4824
C4817
D6802
R455
R451
D451
D6801
C452
R6803
IC4201
IC4801
Q4901
Q4902
Q4903
Q4904
Q4905
Q4906
Q4907
Q4810
Q4811
QR4903
QR4904
FL4901
FL4902
CL4201
CL4202
CL4204
CL4205
CL4206
CL4901
CL4903
CL4904
L4201
L4202
C4203
C4212
S6901
JLA
JCA
JGA
JRA

CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN
DE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH
E COMPONENT LAYOUT.

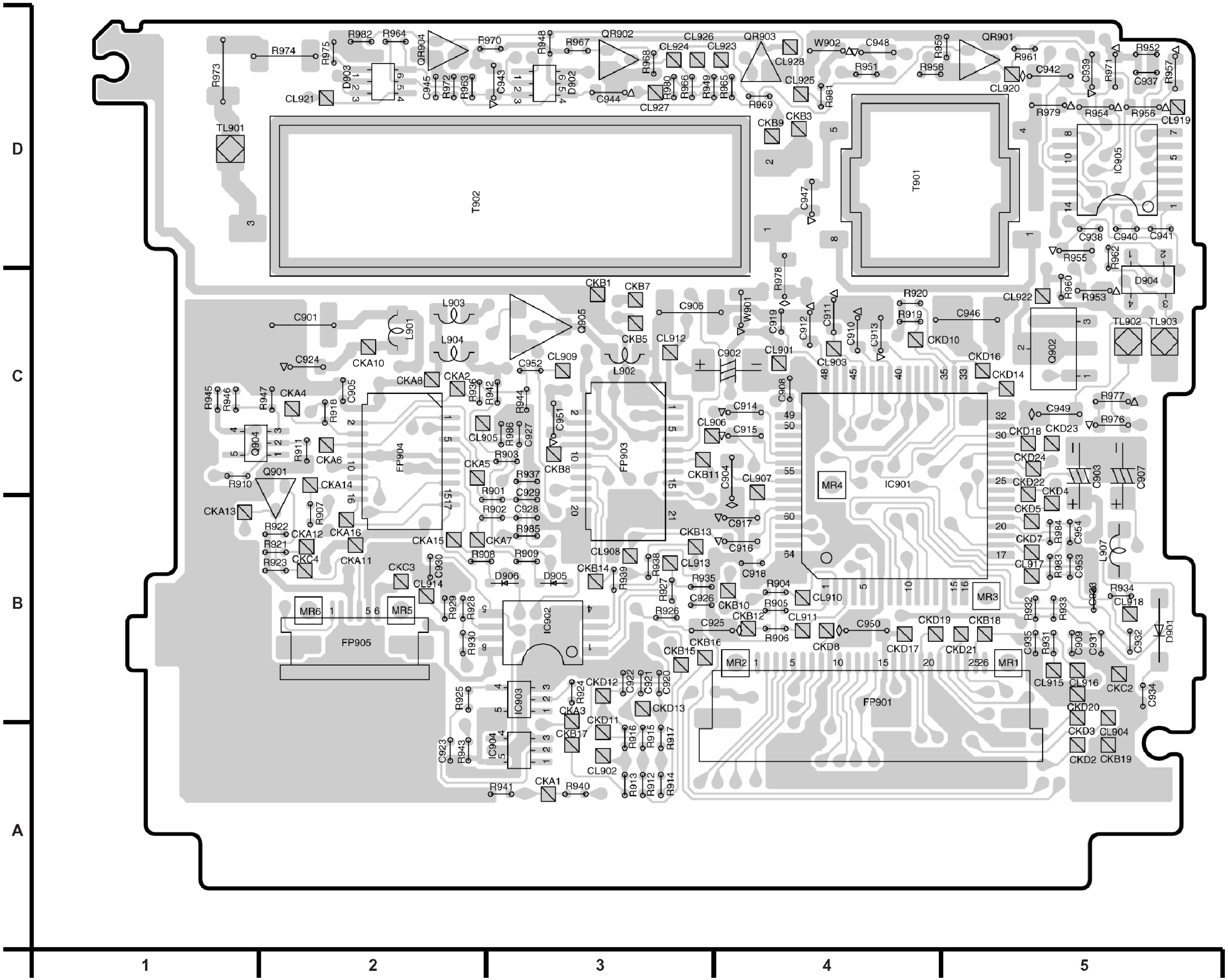
(COMPONENT SIDE)   (FOIL SIDE)

12.4 MONITOR C.B.A.

TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT


D
C
B
A
1
2
3
4
5
T901
T902
IC901
IC902
IC903
IC904
IC905
FP901
FP903
FP904
FP905
Q901
Q902
Q904
Q905
QR901
QR902
QR903
QR904
D901
D902
D903
D904
D905
D906
TL901
TL902
TL903
L901
L902
L903
L904
L907
MR1
MR2
MR3
MR4
MR5
MR6

Monitor C.B.A	
Integrated Circuit	
IC901	C-4
IC902	B-3
IC903	B-3
IC904	A-3
IC905	D-5
Transistor	
Q901	B-2
Q902	C-5
Q904	C-1
Q905	C-3
Transistor & Resistor	
QR901	D-5
QR902	D-3
QR903	D-4
QR904	D-2
Connector	
FP901	B-4
FP903	C-3
FP904	C-2
FP905	B-2
Test Point	
CL901	C-4
CL902	A-3
CL903	C-4
CL904	B-5
CL905	C-2
CL906	C-3
CL907	B-4
CL908	B-3
CL909	C-3
CL910	B-4
CL911	B-4
CL912	C-3
CL913	B-3
CL914	B-2
CL915	B-5
CL916	B-5
CL917	B-5
CL918	B-5
CL919	D-5
CL920	D-5
CL921	D-2
CL922	C-5
CL923	D-4
CL924	D-3
CL925	D-4
CL926	D-3
CL927	D-3
CL928	D-4

12.5 E.V.F. C.B.A.

TOP PREVIOUS NEXT

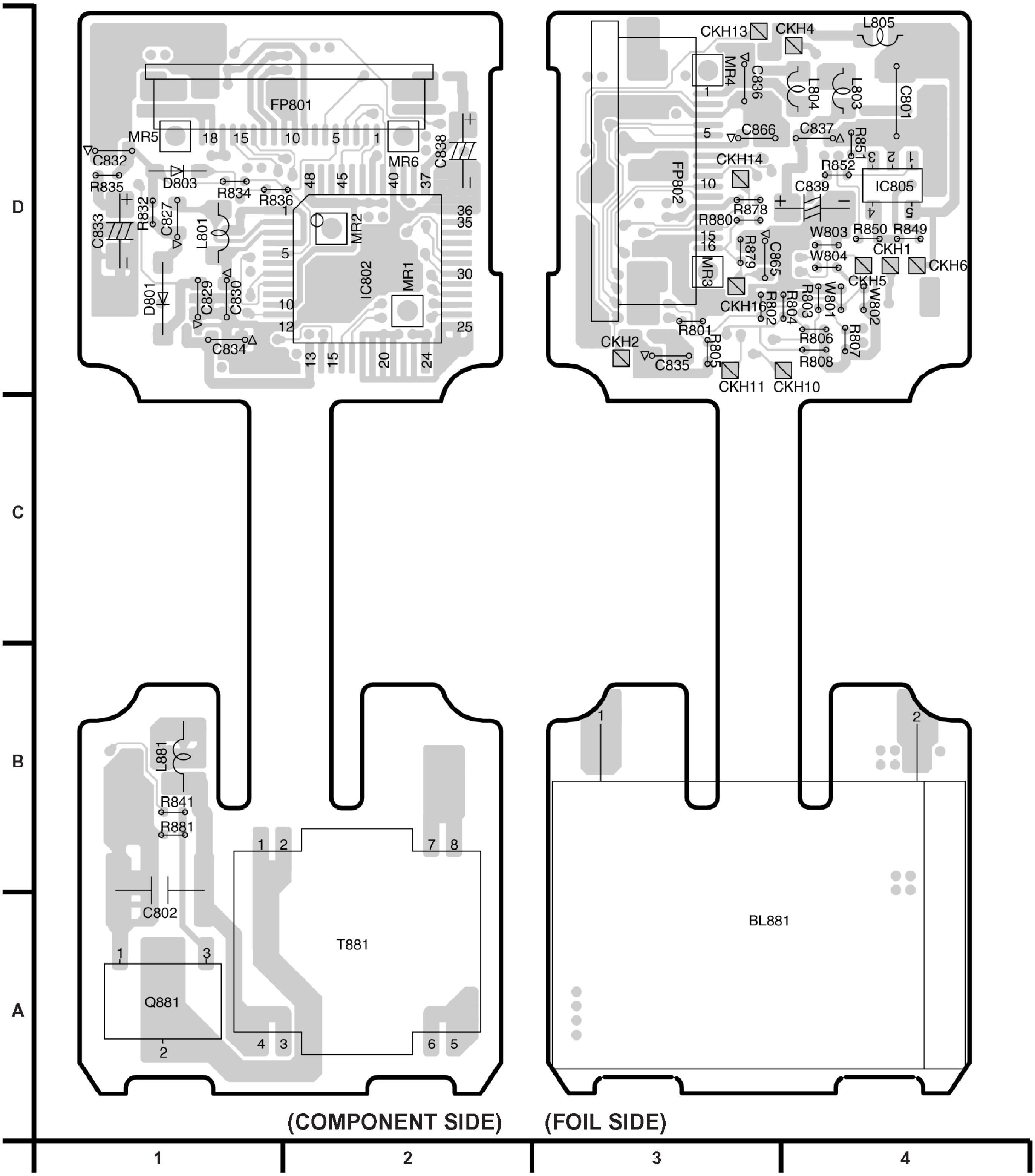
•@

TOP PREVIOUS NEXT

E.V.F. C.B.A.

Integrated Circuit		**Coil**		C802	A-1	C865	D-3	R834	D-1
IC802	D-2	L801	D-1	C827	D-1	C866	D-3	R835	D-1
IC805	D-4	L803	D-4	C829	D-1	**Resistor**		R836	D-1
Transistor		L804	D-4	C830	D-1	R801	D-3	R841	B-1
Q881	A-1	L805	D-4	C832	D-1	R802	D-3	R849	D-4
Connector		L881	B-1	C833	D-1	R803	D-4	R850	D-4
FP801	D-2	**Transformer**		C834	D-1	R804	D-4	R851	D-4
FP802	D-3	T881	A-2	C835	D-3	R805	D-3	R852	D-4
Diode		**Back Light**		C836	D-3	R806	D-4	R878	D-3
D801	D-1	BL881	A-3	C837	D-4	R807	D-4	R879	D-3
D803	D-1	**Capacitor**		C838	D-2	R808	D-4	R880	D-3
		C801	D-4	C839	D-4	R832	D-1	R881	B-1

NOTE:MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.


D
C
B
A
1
2
3
4
FP801
MR5
MR6
MR1
MR2
IC802
C832
R835
D803
R834
R836
C833
R832
C827
L801
C838
D801
C829
C830
C834
L881
R841
R881
C802
Q881
T881
FP802
CKH13
CKH4
L805
MR4
C836
L804
L803
C801
C866
C837
R851
CKH14
R852
IC805
C839
R880
R878
W803
R850
R849
R879
C865
W804
CKH1
CKH6
MR3
CKH5
W801
W802
CKH16
R802
R804
R803
R801
R806
R807
CKH2
C835
R805
R808
CKH11
CKH10
BL881

(COMPONENT SIDE) (FOIL SIDE)

12.6 CCD FLEX. CARD C.B.A.

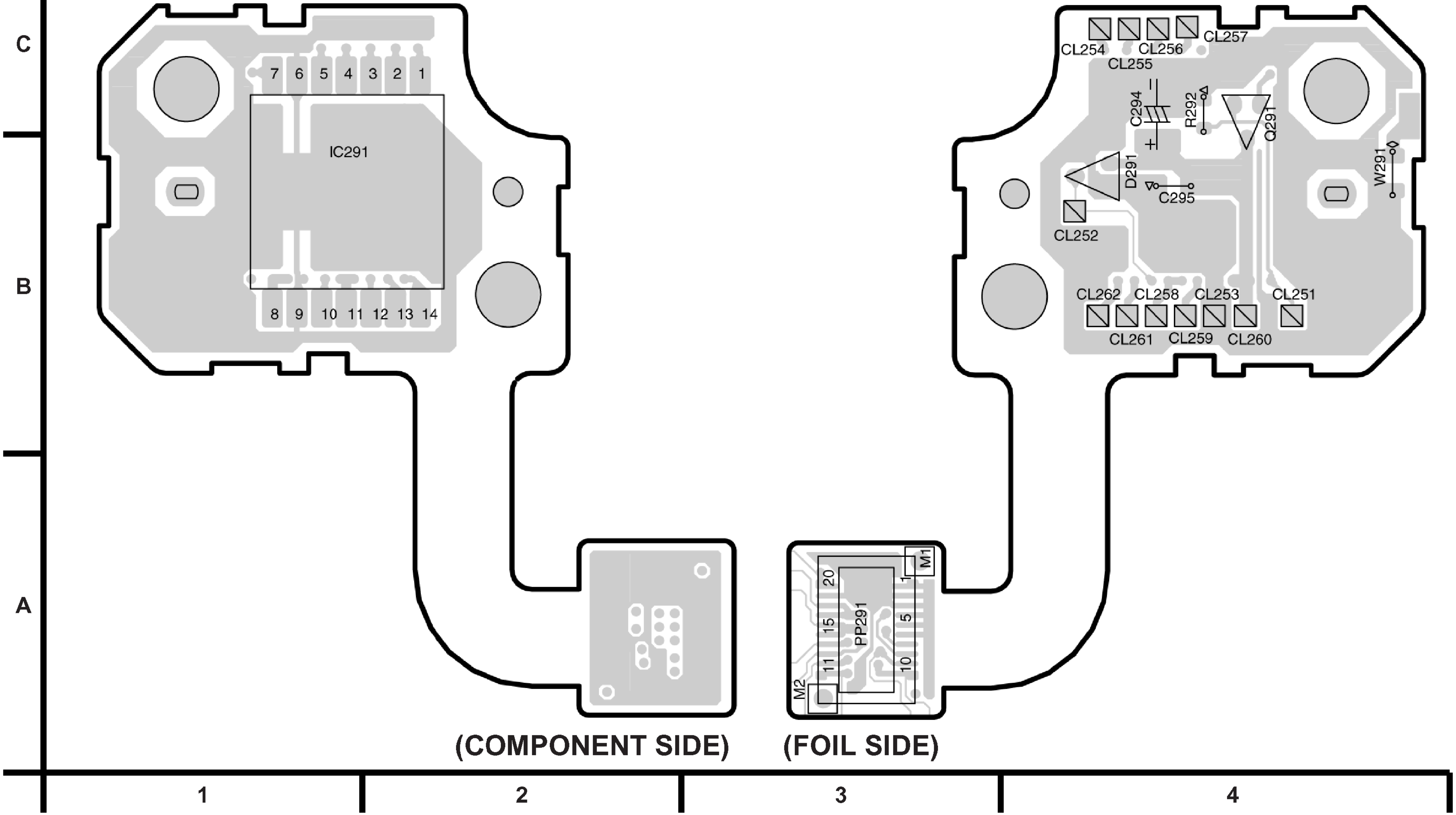
TOP PREVIOUS NEXT

•@

TOP PREVIOUS NEXT

NOTE:MULTILAYER C.B.A.

THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.



(COMPONENT SIDE) (FOIL SIDE)

C
B
A
1
2
3
4
IC291
1
2
3
4
5
6
7
8
9
10
11
12
13
14
CL254
CL255
CL256
CL257
C294
R292
Q291
D291
C295
W291
CL252
CL262
CL261
CL258
CL259
CL253
CL260
CL251
M1
M2
PP291
1
5
10
11
15
20

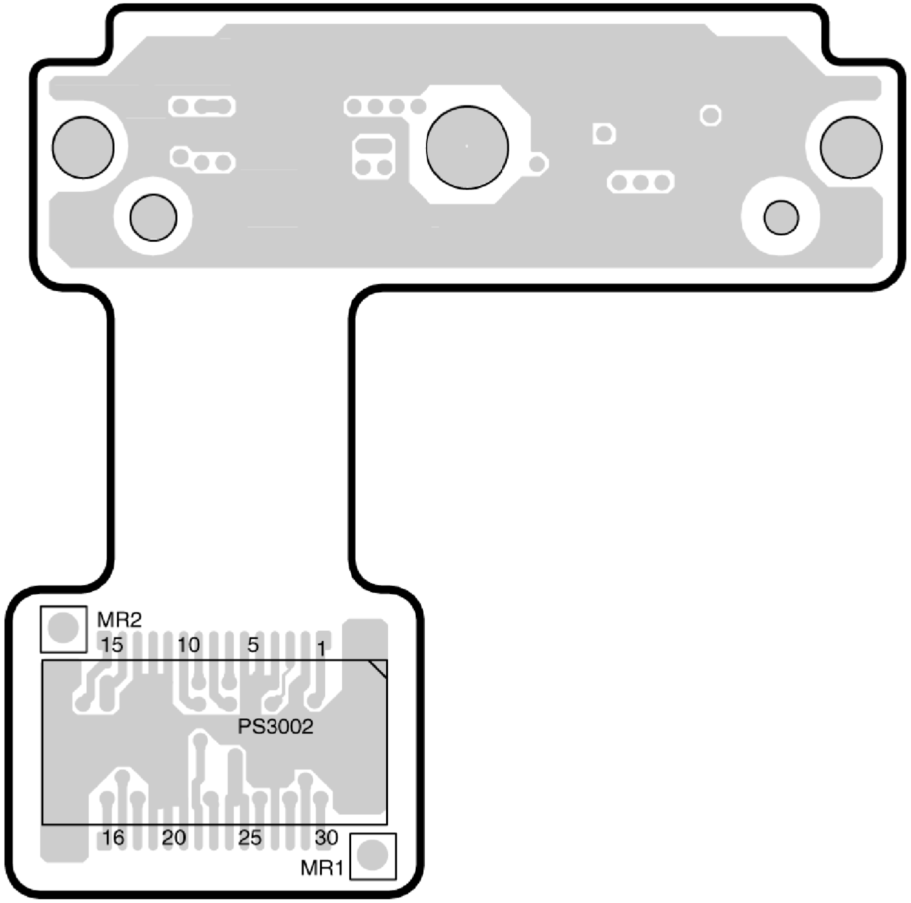
12.7 MULTI JACK C.B.A.

TOP PREVIOUS NEXT

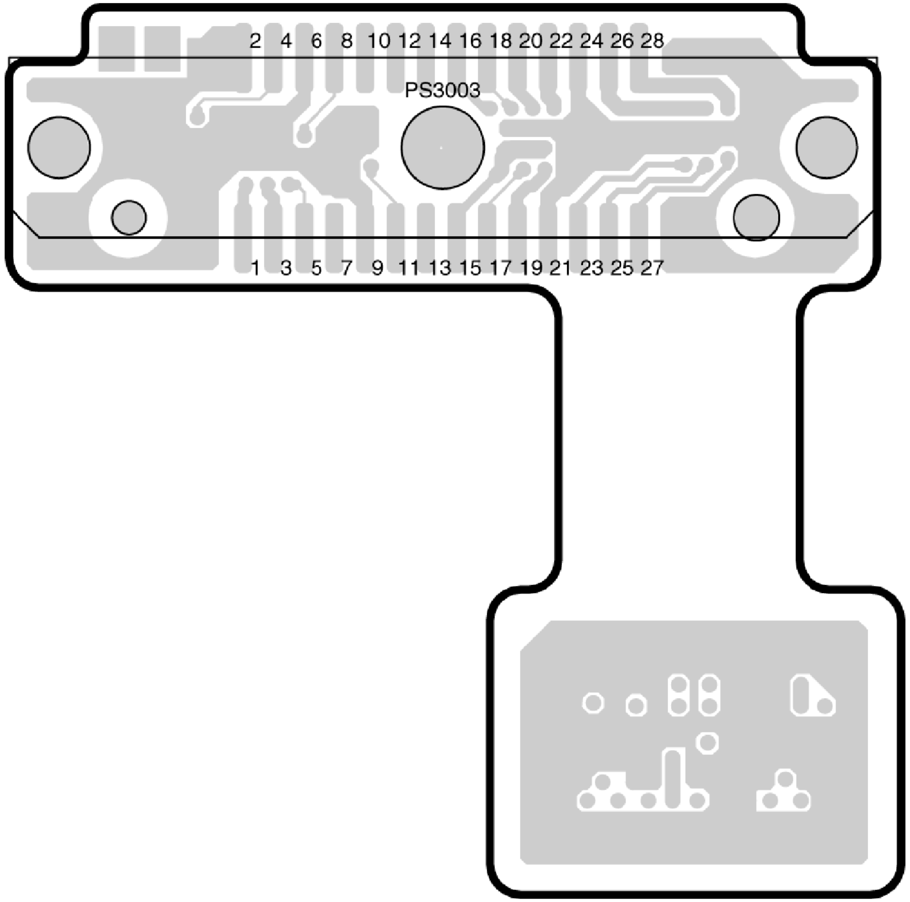
•@

TOP PREVIOUS NEXT

NOTE:MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.


C
B
A
1
2
MR2
15
10
5
1
PS3002
16
20
25
30
MR1

(COMPONENT SIDE)


2 4 6 8 10 12 14 16 18 20 22 24 26 28
PS3003
1 3 5 7 9 11 13 15 17 19 21 23 25 27
3
4

(FOIL SIDE)

13 EXPLODED VIEWS

TOP PREVIOUS NEXT

13.1 FRAME& CASING SECTION (1)

13.2 FRAME& CASING SECTION (2)

13.3 LCD SECTION

13.4 CAMERA LENS SECTION

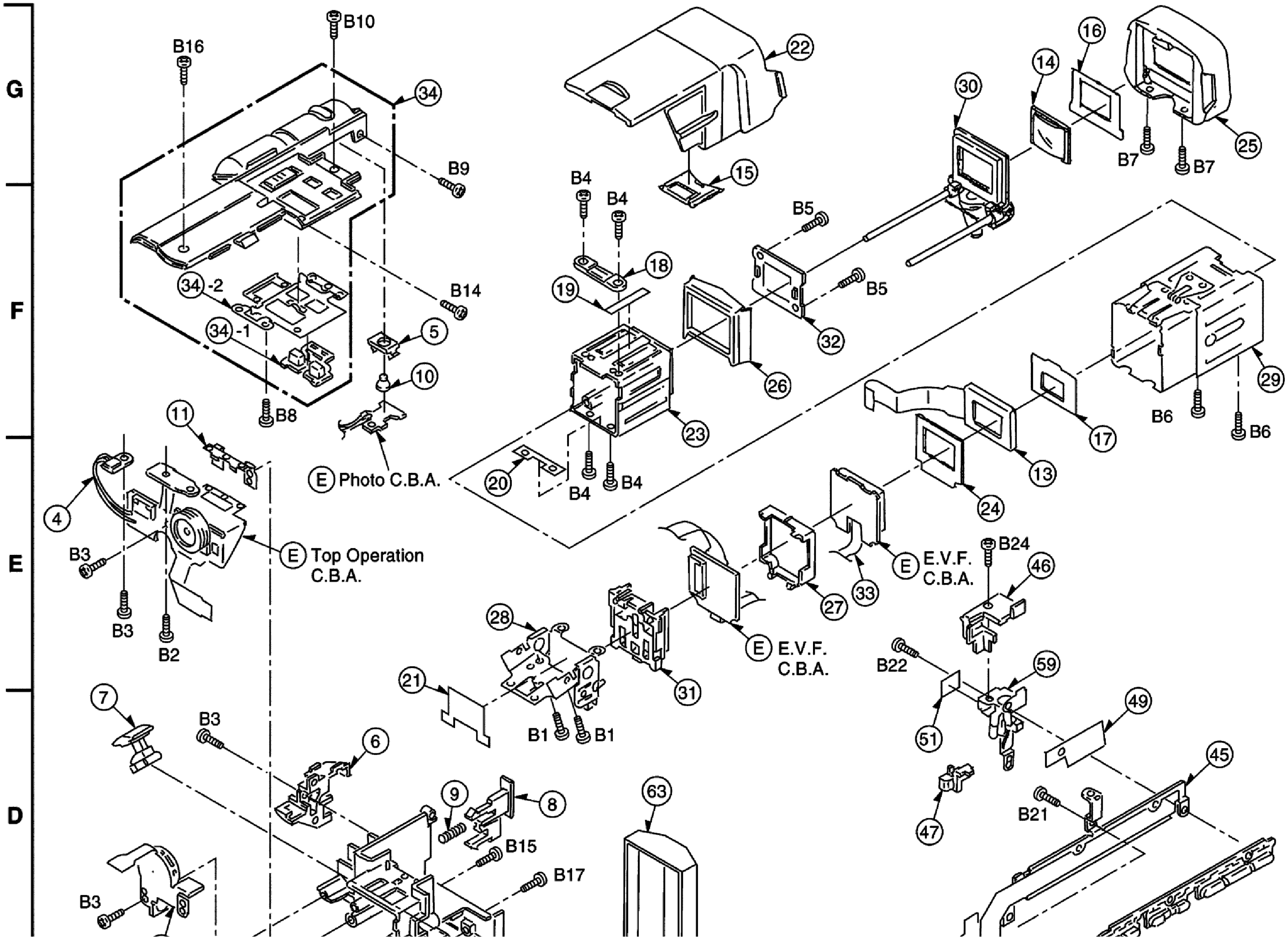
13.5 PACKING PARTS& ACCESSORIES SECTION

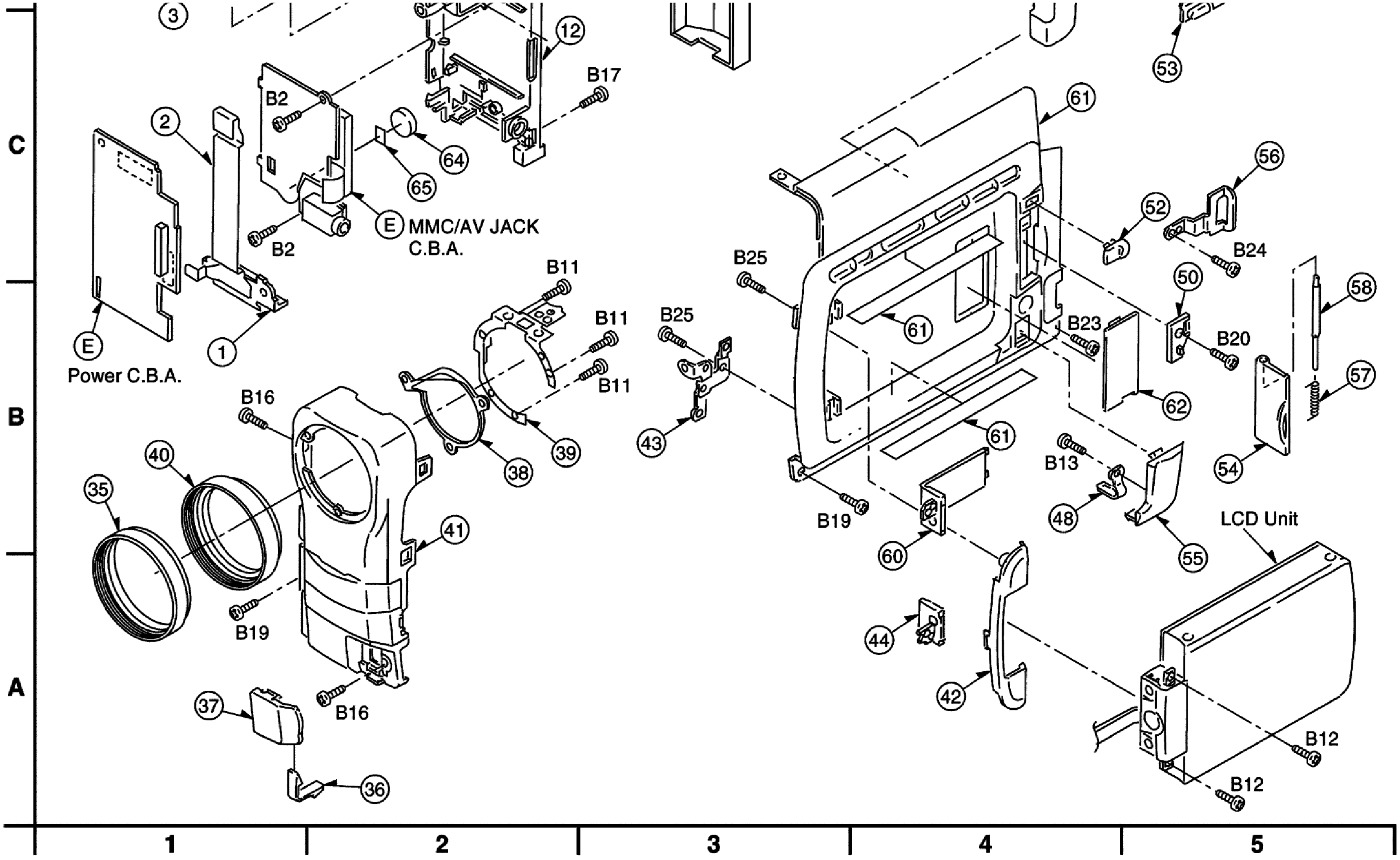
•@

TOP PREVIOUS NEXT

13.1 FRAME& CASING SECTION (1)

TOP PREVIOUS NEXT

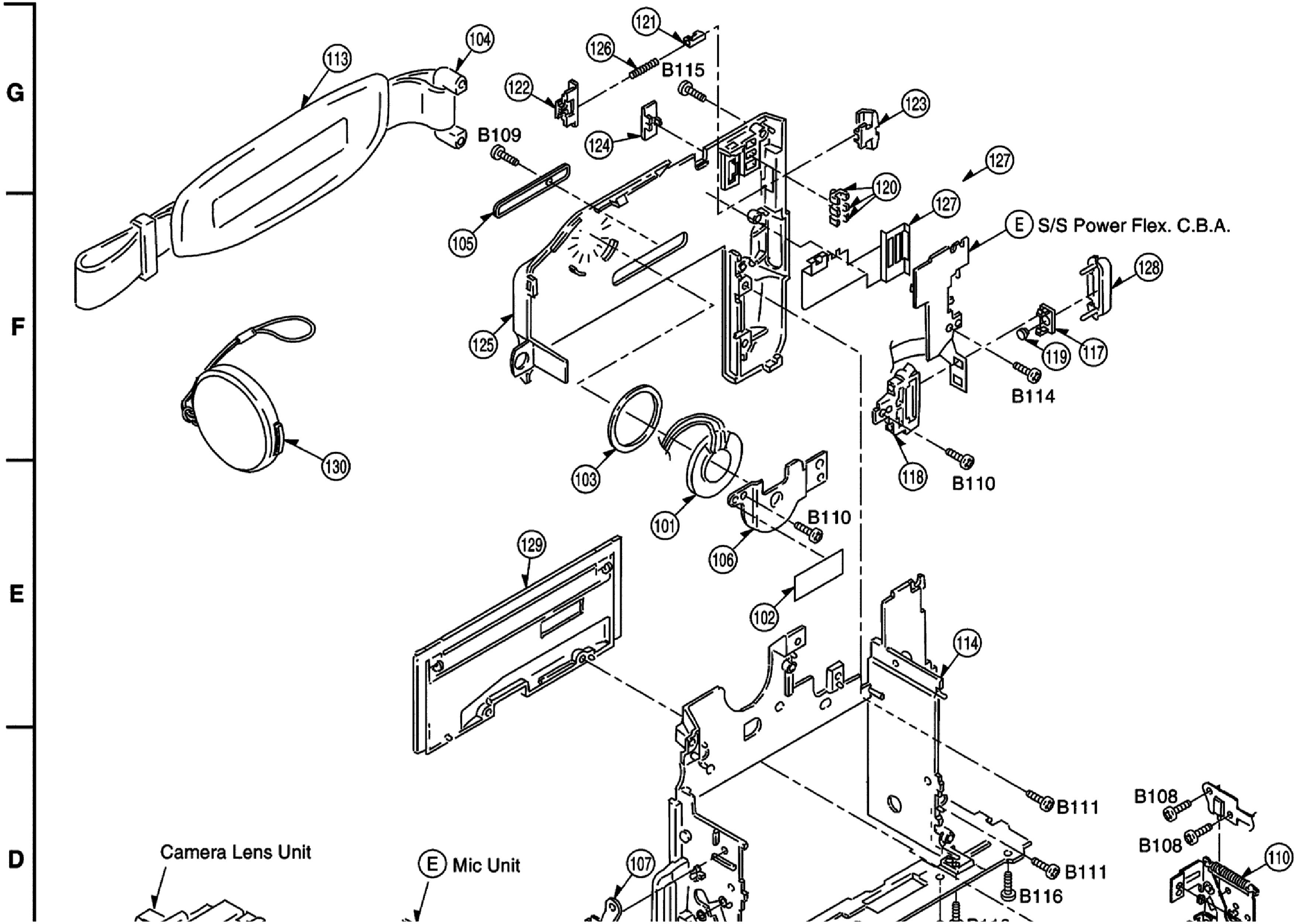

G
F
E
D
B16
B10
34
B9
B14
34-2
34-1
B8
5
10
11
E Photo C.B.A.
4
B3
B3
B2
E Top Operation C.B.A.
7
B3
6
9
8
B15
B17
B3
22
15
B4
B4
18
19
B5
B5
32
26
23
20
B4
B4
30
14
16
B7
B7
25
29
B6
B6
17
13
24
E E.V.F. C.B.A.
33
27
E E.V.F. C.B.A.
31
28
B1
B1
21
63
B24
46
B22
59
51
49
45
47
B21

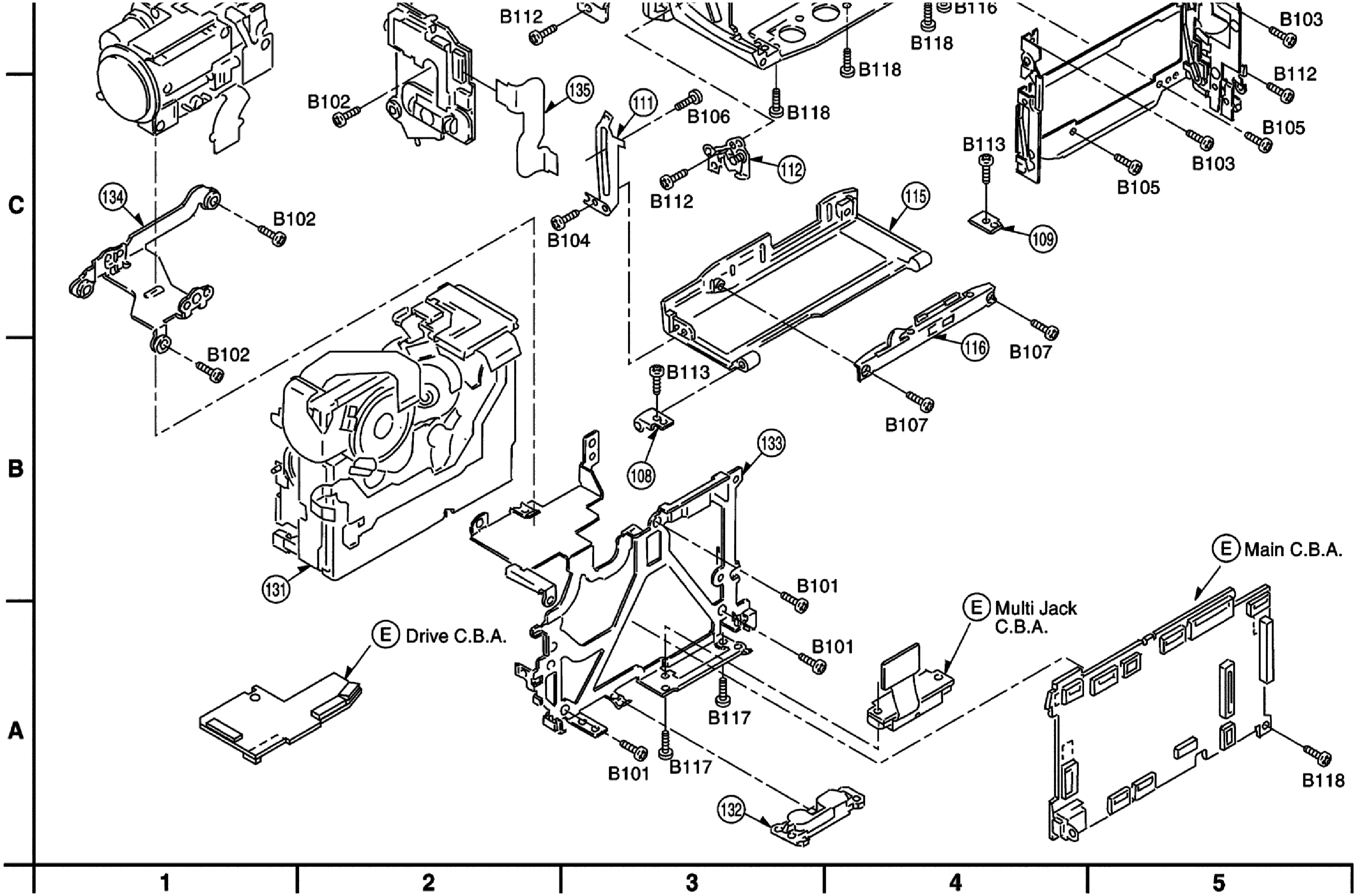

3
12
B17
53
61
C
2
B2
64
65
B2
E MMC/AV JACK C.B.A.
56
52
B24
B25
B11
B11
B25
61
50
B23
B20
58
E
Power C.B.A.
1
B11
B16
B
43
62
57
40
35
38
39
61
54
B13
41
B19
60
48
55
LCD Unit
B19
44
A
37
B16
42
B12
B12
36
1
2
3
4
5

•@

TOP PREVIOUS NEXT

13.2 FRAME& CASING SECTION (2)

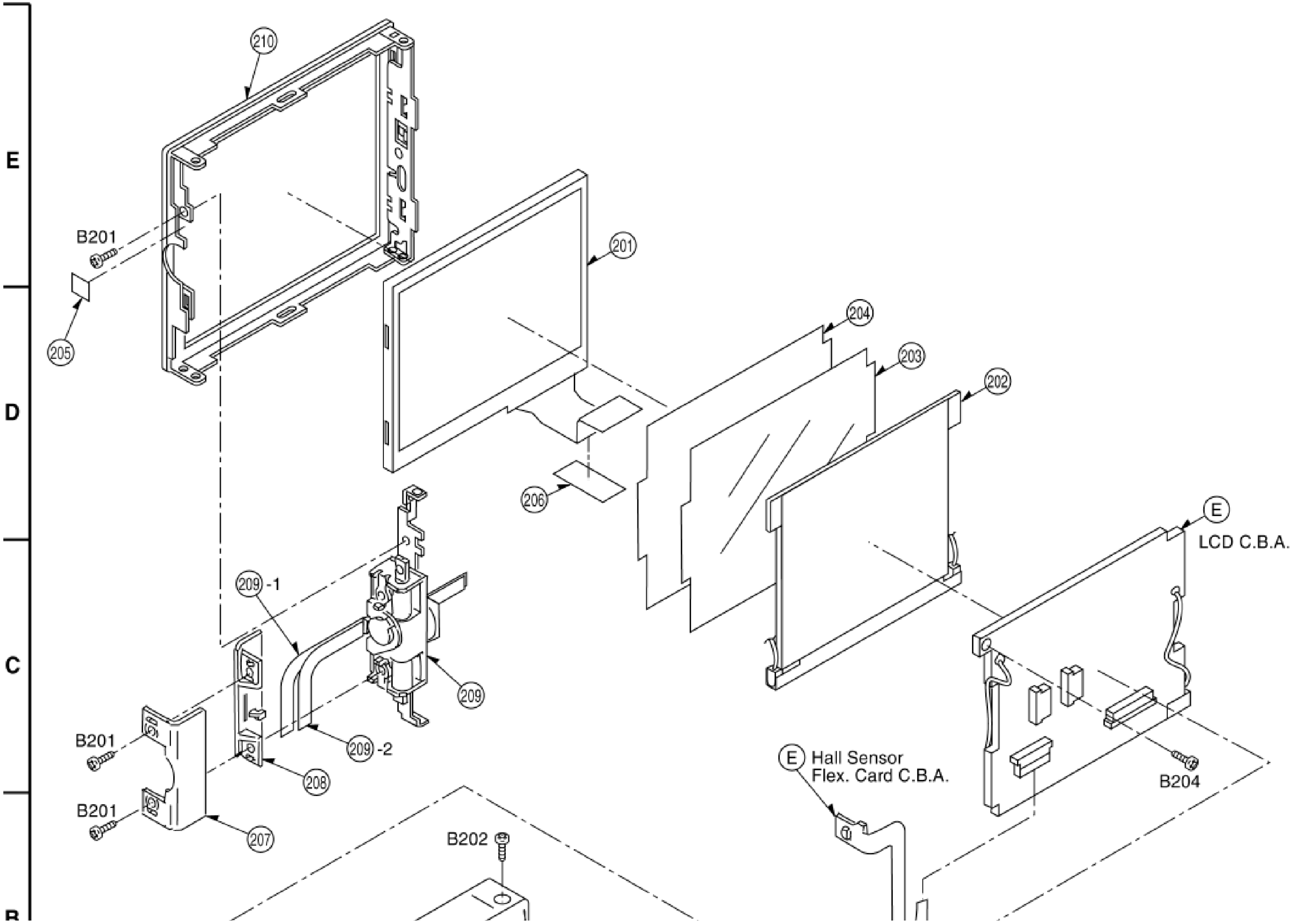

G
F
E
D
113
104
121
126
122
B115
B109
124
123
127
120
127
E S/S Power Flex. C.B.A.
128
105
125
117
119
B114
130
103
101
118
B110
B110
106
129
102
114
B111
B108
B108
110
B111
B116
Camera Lens Unit
E Mic Unit
107


B112
B116
B118
B118
B118
B103
B112
B105
B103
B105
B113
B102
135
111
B106
112
B112
B104
134
B102
115
109
116
B107
B102
B113
B107
108
133
B101
B101
131
Main C.B.A.
Multi Jack C.B.A.
Drive C.B.A.
E
E
E
B117
B117
B101
B118
132
A
B
C
1
2
3
4
5

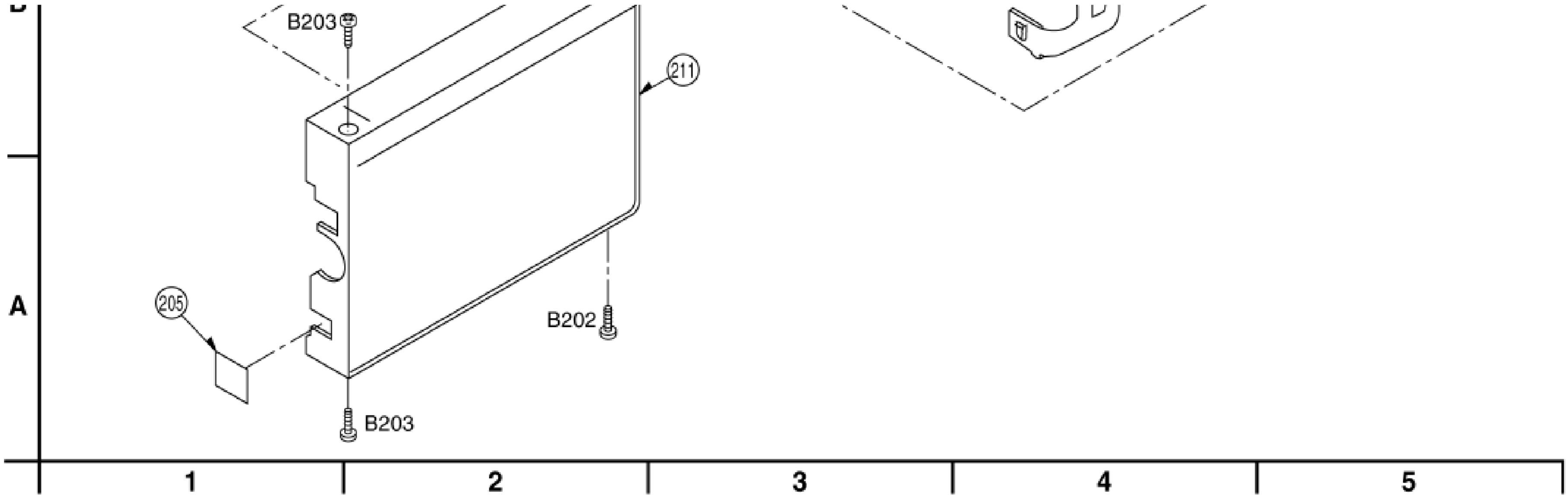
•@
TOP PREVIOUS NEXT

13.3 LCD SECTION

TOP PREVIOUS NEXT



E
D
C
B
210
B201
205
201
204
203
202
206
E
LCD C.B.A.
209 -1
209
209 -2
208
B201
B201
207
B202
E
Hall Sensor
Flex. Card C.B.A.
B204

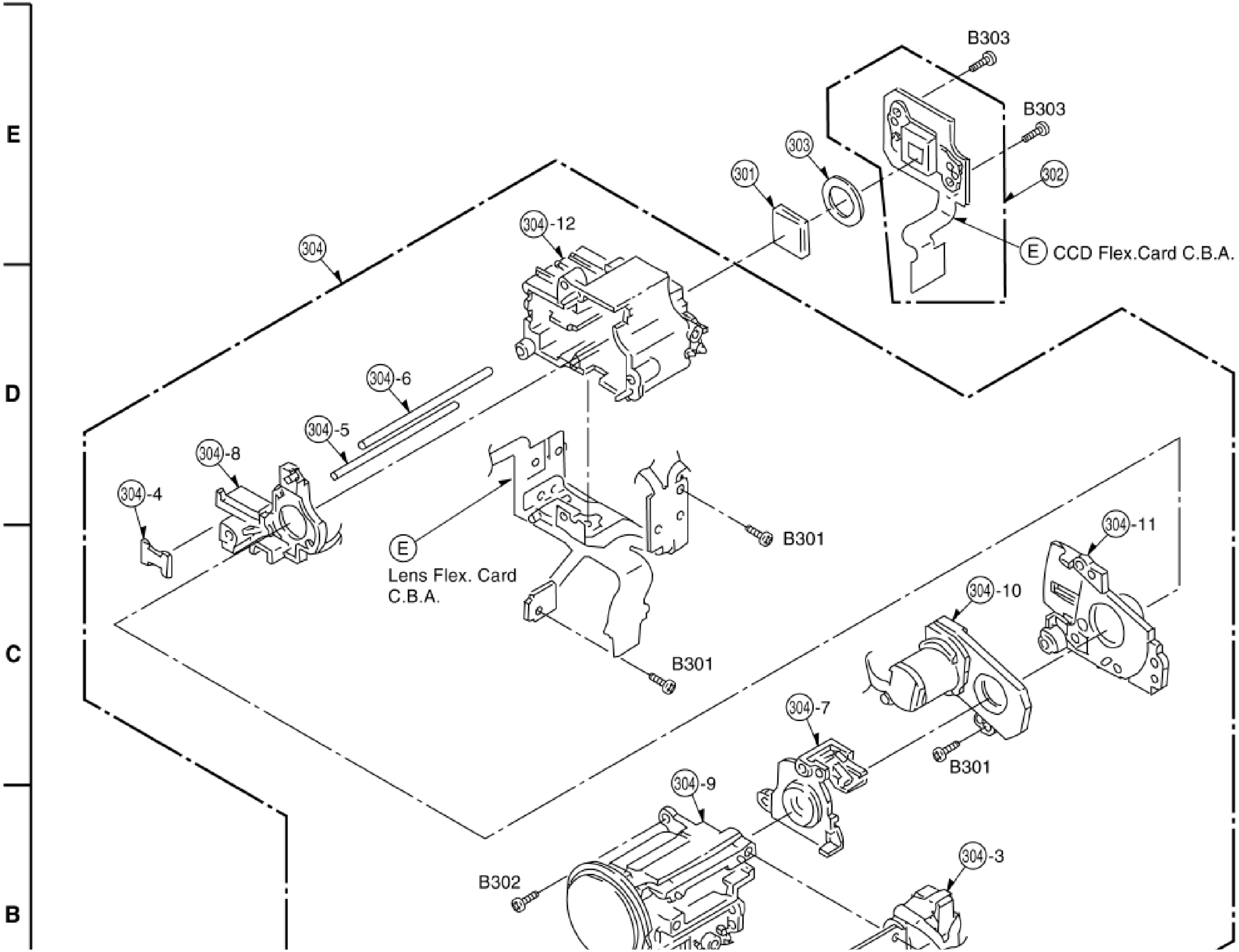

B203
211
205
A
B202
B203
1
2
3
4
5

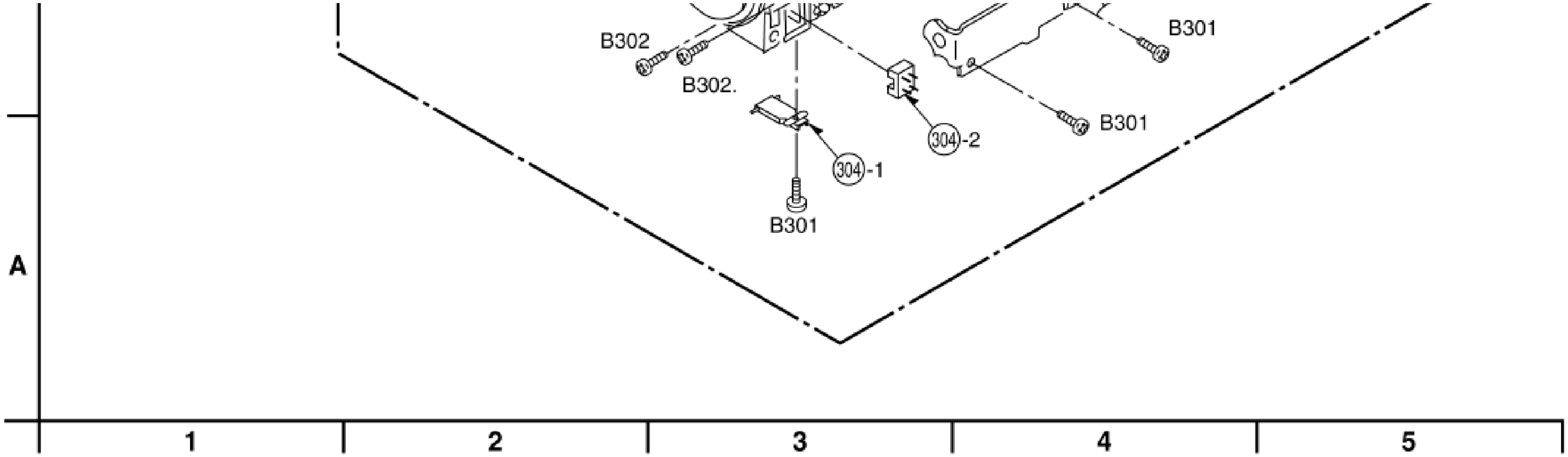
•@

TOP PREVIOUS NEXT

13.4 CAMERA LENS SECTION

TOP PREVIOUS NEXT


E
D
C
B
B303
B303
303
301
302
E CCD Flex.Card C.B.A.
304-12
304
304-6
304-5
304-8
304-4
E Lens Flex. Card C.B.A.
B301
B301
304-11
304-10
304-7
B301
304-9
B302
304-3

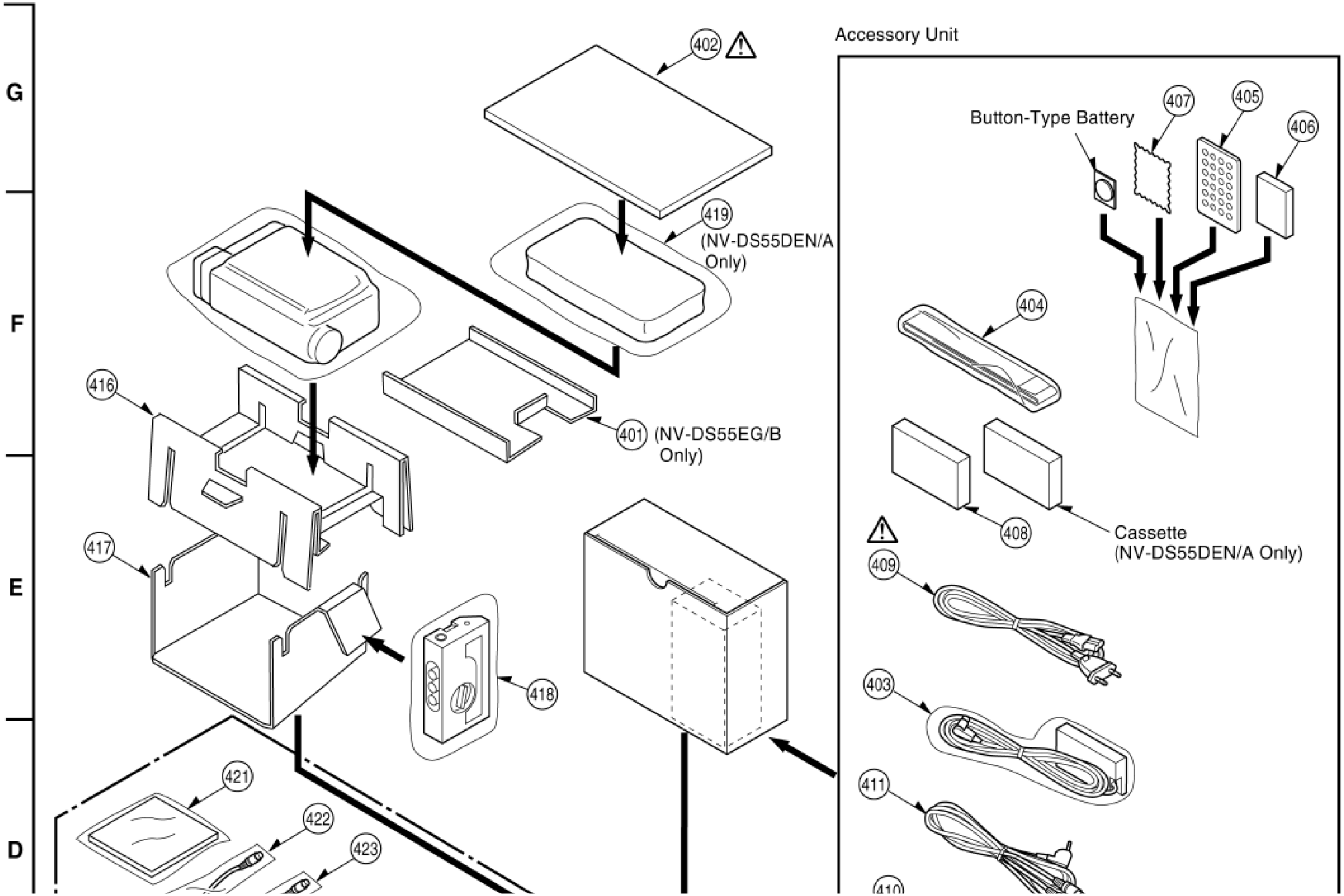

B302
B302.
B301
B301
B301
304-2
304-1
A
1
2
3
4
5

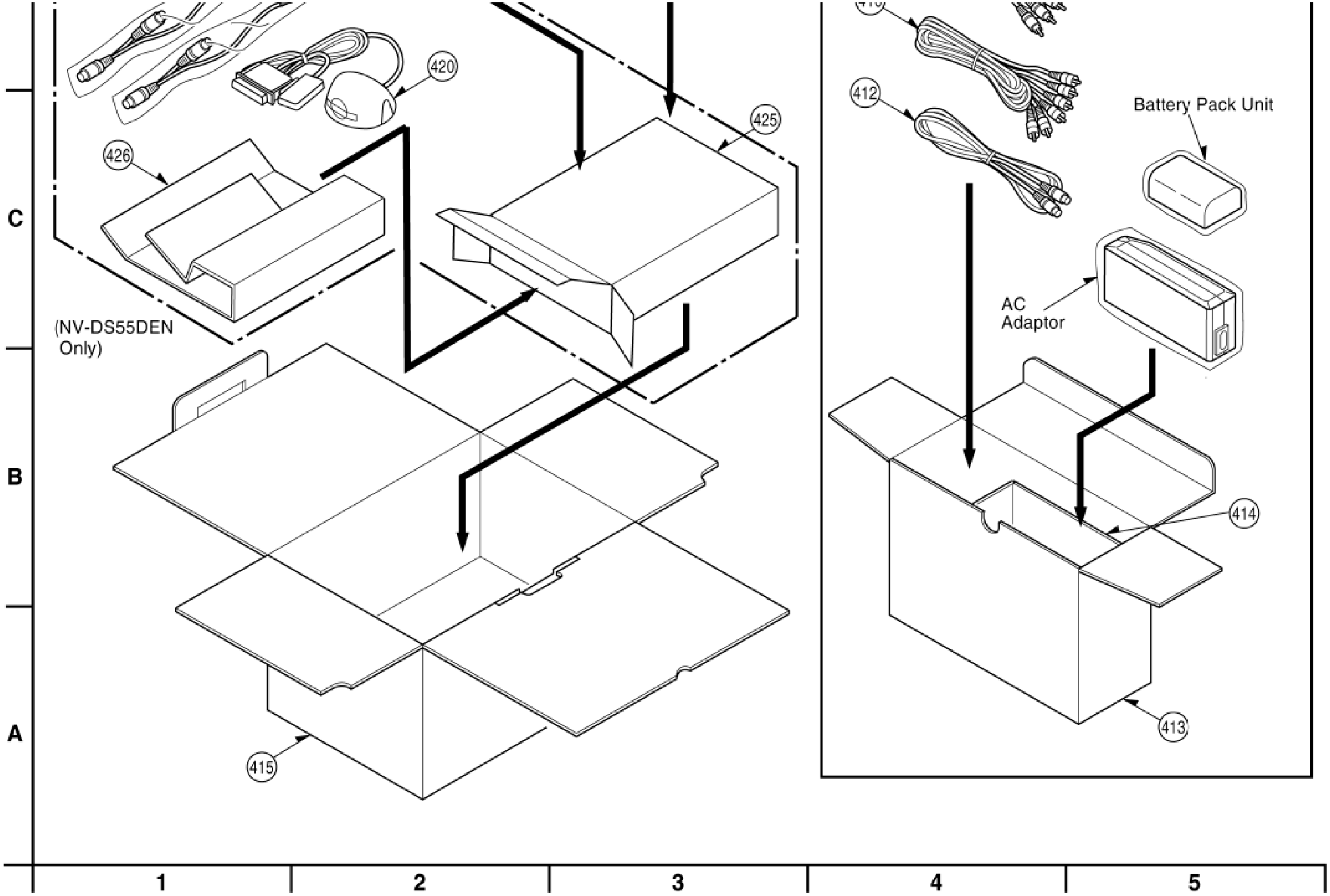
•@

TOP PREVIOUS NEXT

13.5 PACKING PARTS& ACCESSORIES SECTION

TOP PREVIOUS NEXT


G
F
E
D
402
419
(NV-DS55DEN/A Only)
401
(NV-DS55EG/B Only)
416
417
418
421
422
423
Accessory Unit
Button-Type Battery
407
405
406
404
408
Cassette
(NV-DS55DEN/A Only)
409
403
411


420
426
425
(NV-DS55DEN Only)
412
Battery Pack Unit
AC Adaptor
414
413
415
C
B
A
1
2
3
4
5

•@

TOP PREVIOUS NEXT

14 REPLACEMENT PARTS LIST

TOP PREVIOUS NEXT

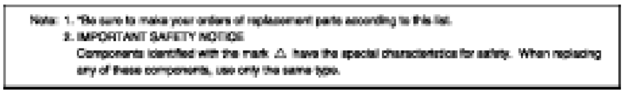
14.1 FRAME& CASING SECTION (1) PARTS LIST
14.2 FRAME& CASING SECTION (2) PARTS LIST
14.3 LCD SECTION PARTS LIST
14.4 CAMERA LENS SECTION PARTS LIST
14.5 PACKING PARTS& ACCESSORIES SECTION PARTS LIST
14.6 ELECTRICAL PARTS LIST

•@

TOP PREVIOUS NEXT

14.1 FRAME& CASING SECTION (1) PARTS LIST

TOP PREVIOUS NEXT



Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

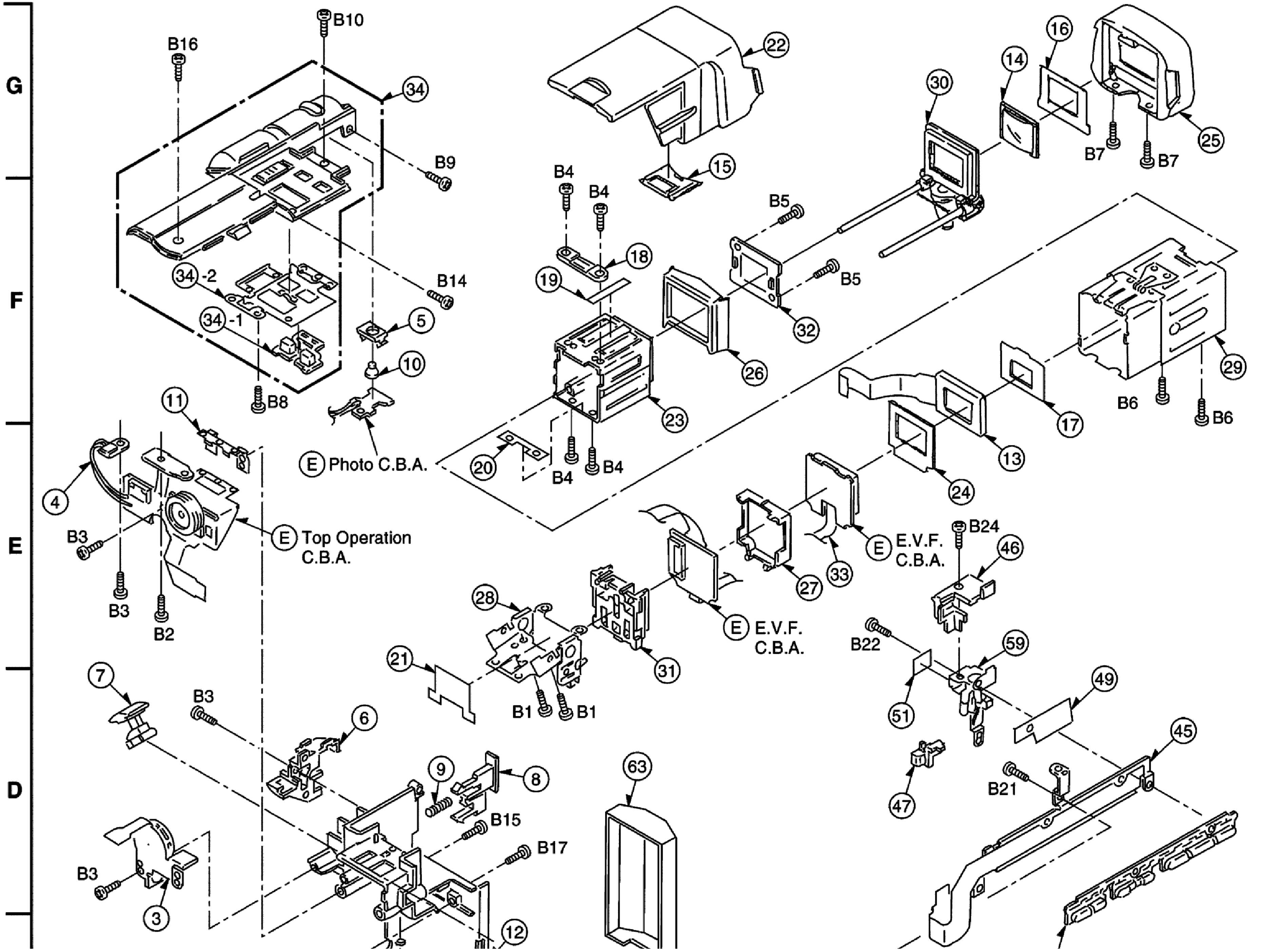
Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
1 (1)	VEK8719	BATTERY CATCHER	1	
2 (1)	VWJ1301	POWER FLEX.	1	
3 (1)	VEK8706	ZOOM VR U.	1	
4 (1)	VEK8384	DEW SENSOR	1	
5 (1)	VGQ4836	RUBBER FIXING PIECE	1	
6 (1)	VGQ5390	PHOTO SHOT MOUNT PIECE	1	
7 (1)	VGU8239	ZOOM KNOB	1	
8 (1)	VGU8240	BATTERY LOCK KNOB	1	
9 (1)	VMB3210	BATTERY LOCK SPRING	1	
10 (1)	VMG1112	RUBBER	1	
11 (1)	VMP6069	EARTH PLATE	1	
12 (1)	VYK9334	REAR CASE (1) U.	1	
13 (1)	F05KM100	EVF LCD PANEL	1	
14 (1)	VDL0737	EVF LENS	1	
15 (1)	VGQ4809	WINDOW COVER	1	
16 (1)	VGQ4982	EVF LENS SHEET	1	
17 (1)	VGQ5056	LCD MASK	1	
18 (1)	VGQ5472	EVF GUIDE PIECE	1	
19 (1)	VGQ5496	FIXING SHEET	1	
20 (1)	VGQ5528	EVF ALUMINUM SASH	1	
21 (1)	VGQ5549	EVF HINGE BARRIER	1	
22 (1)	VGQ5640	EVF SLIDE CASE	1	
23 (1)	VJF1373	LCD HOLD PIECE	1	
24 (1)	VMG1105	EVF RUBBER	1	
25 (1)	VMG1239	EYE CAP	1	
26 (1)	VMG1275	PROTECT FRAME	1	
27 (1)	VMX2834	PB SPACER	1	

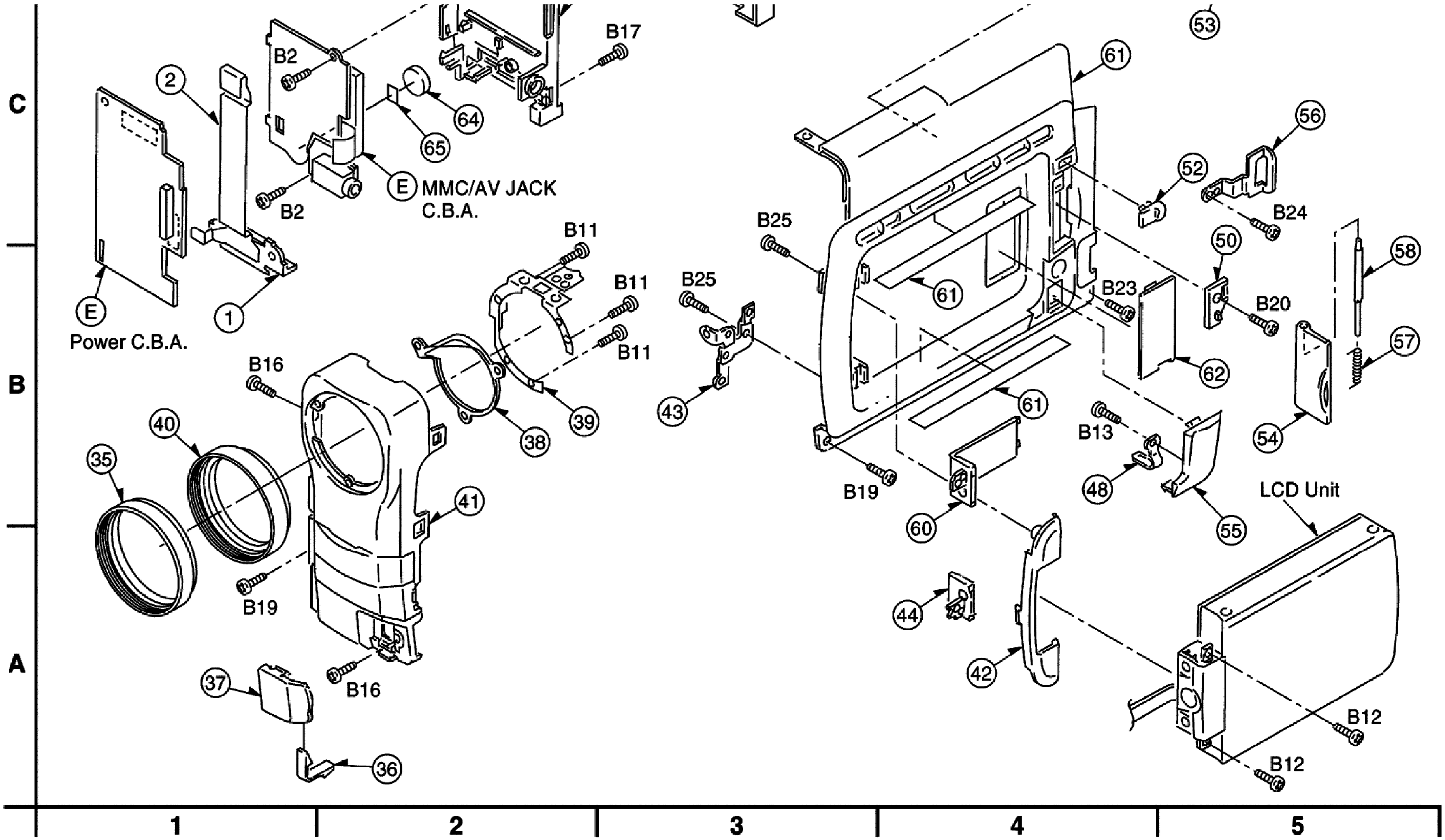
28 (1)	VXA6388	EVF HINGE U.	1	
29 (1)	VXA6416	EVF SLIDE U.	1	
30 (1)	VXA6477	ADJ. GUIDE U.	1	
31 (1)	VXL2876	EVF SHUTTER U.	1	
32 (1)	VYQ1776	EVF PROTECT COVER U.	1	
33 (1)	VWJ1327	EVF FLEX.	1	
34 (1)	VYK9336	TOP PANEL U.	1	
34-1 (1)	VGU8096	MENU FOCUS BUTTON	1	
34-2 (1)	VMP6068	EARTH PLATE	1	
35 (1)	VDW0651	LENS HOOD	1	
36 (1)	VGQ4820	DV COVER HINGE	1	
37 (1)	VKF3109	DV COVER	1	
38 (1)	VMG1240	LENS O RING	1	
39 (1)	VMP6071	FRONT ANGLE	1	
40 (1)	VXA6479	LENS HOOD FIXING PIECE	1	
41 (1)	VYK9338	FRONT CASE (1) U.	1	
42 (1)	VGQ5398	LCD ROTARY ACCESSORY	1	
43 (1)	VMC1539	EARTH PLATE	1	
44 (1)	VYK9175	MAGNET HOLDER (LOWER)	1	
45 (1)	VEK8785	SIDE OP. ANGLE U.	1	
46 (1)	VGQ5397	R PROTECT PIECE	1	
47 (1)	VGQ5402	LCD LOCK PIECE	1	
48 (1)	VGQ5403	AV 4-PIN HINGE	1	
49 (1)	VGQ5405	R PROTECT SHEET (B)	1	
50 (1)	VGQ5474	MMC COVER LOCK PIECE	1	
51 (1)	VGQ5529	EVF FLEX. BARRIER	1	
52 (1)	VGU8247	LCD LOCK CANCEL KNOB	1	
53 (1)	VGU8395	VTR OP. BUTTON	1	
54 (1)	VKF3187	MMC COVER	1	
55 (1)	VKF3188	AV 4-PIN COVER	1	
56 (1)	VMA0C53	SHOULDER BELT ANGLE	1	
57 (1)	VMB3367	MMC COVER OPEN SPRING	1	
58 (1)	VMS6609	MMC COVER SHAFT	1	
59 (1)	VXA6417	LCD LOCK U.	1	
60 (1)	VYK9174	MAGNET HOLDER (UPPER)	1	
61 (1)	VYK9343	R BASE (1) U.	1	
61-1 (1)	VGQ5419	R PROTECT SHEET	2	

62 (1)	VKF3113	EVR COVER	1	
63 (1)	VYK9425	BATTERY DUMMY CASE U.	1	
64 (1)	VSB0407	LITHIUM BATTERY	1	
65 (1)	VGQ5177	TAPE	1	
B1 (1)	VHD1157	SCREW	2	
B2 (1)	XQN16+BJ3FZ	SCREW	3	
B3 (1)	XQN16+BJ4FZ	SCREW	4	
B4 (1)	VHD1262	SCREW	4	
B5 (1)	VHD1303	SCREW	2	
B6 (1)	XQN16+A15FN	SCREW	2	
B7 (1)	XQN16+B2FZ	SCREW	2	
B8 (1)	XQN16+BJ35	SCREW	1	
B9 (1)	XQN16+BJ4FN	SCREW	1	
B10 (1)	XQN16+BJ8FN	SCREW	1	
B11 (1)	XQN16+B4FN	SCREW	3	
B12 (1)	VHD1139	SCREW	2	
B13 (1)	VHD1322	SCREW	1	
B14 (1)	XQN16+BJ6FZ	SCREW	1	
B15 (1)	XQN16+B10FZ	SCREW	1	
B16 (1)	XQN16+B25FN	SCREW	3	
B17 (1)	XQN16+B25FZ	SCREW	2	
B19 (1)	XQN16+B4FZ	SCREW	2	
B20 (1)	XQN16+A4FN	SCREW	1	
B21 (1)	XQN16+BJ4	SCREW	1	
B22 (1)	XQN16+B2FZ	SCREW	1	
B23 (1)	XQN16+B3FN	SCREW	1	
B24 (1)	XQN16+B3FZ	SCREW	1	
B25 (1)	XQN16+BJ6	SCREW	2	

•@

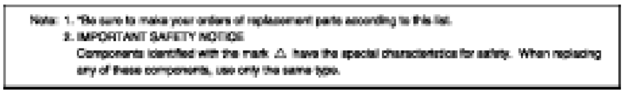
TOP PREVIOUS NEXT


G
F
E
D
B16
B10
34
B9
B14
34-2
34-1
B8
5
10
E Photo C.B.A.
11
4
B3
B3
B2
E Top Operation C.B.A.
7
B3
6
9
8
B15
B17
B3
3
12
22
15
B4
B4
18
19
23
B4
B4
20
26
B5
B5
32
30
14
16
25
B7
B7
29
B6
B6
17
13
24
E E.V.F. C.B.A.
27
33
E E.V.F. C.B.A.
31
28
B1
B1
21
63
B24
46
B22
59
51
49
47
B21
45


C
B
A
1
2
3
4
5
Power C.B.A.
MMC/AV JACK C.B.A.
E
E
LCD Unit
1
2
35
36
37
38
39
40
41
42
43
44
48
50
52
53
54
55
56
57
58
60
61
61
61
62
64
65
B2
B2
B11
B11
B11
B12
B12
B13
B16
B16
B17
B19
B19
B20
B23
B24
B25
B25

14.2 FRAME& CASING SECTION (2) PARTS LIST

TOP PREVIOUS NEXT



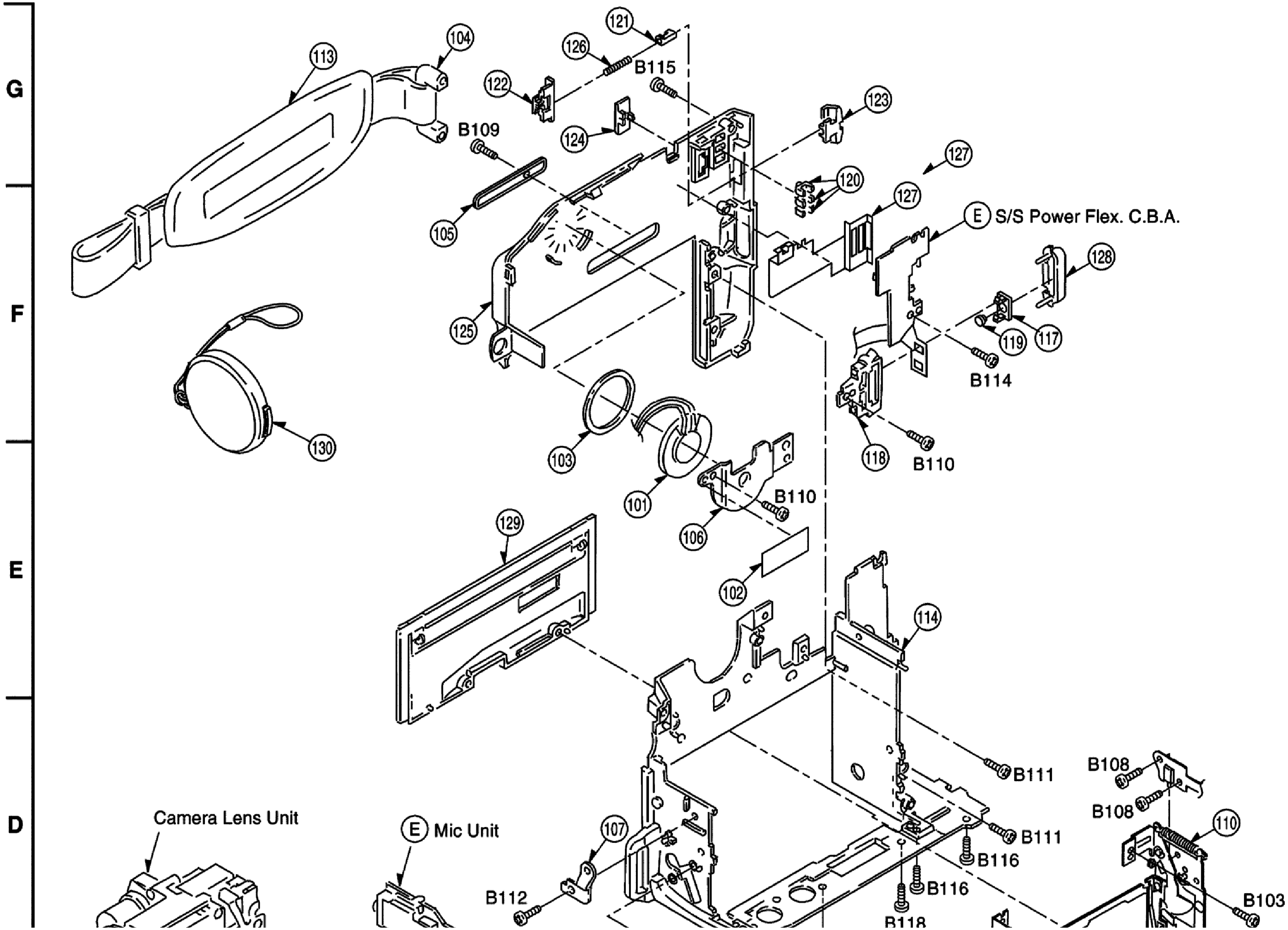
Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

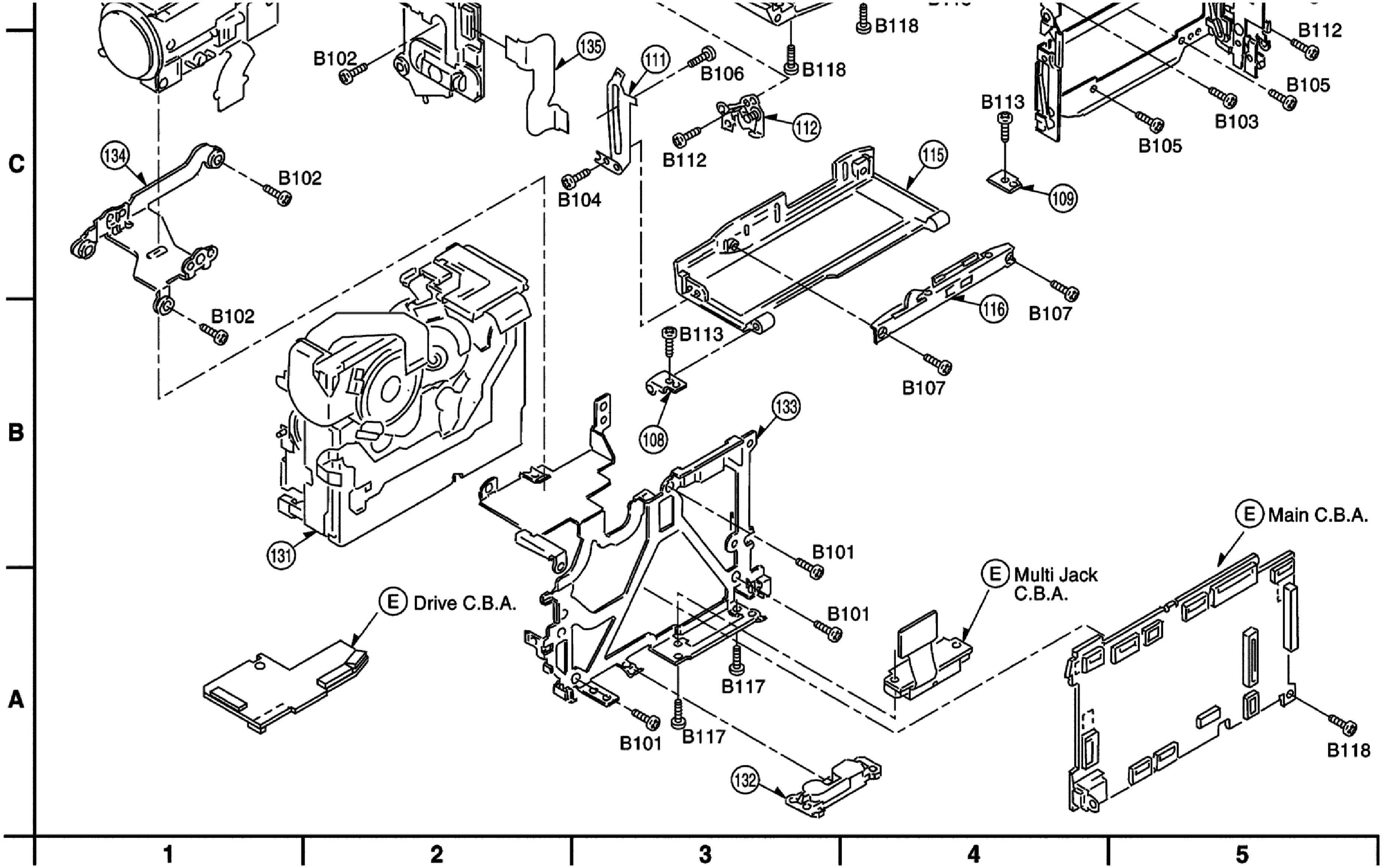
Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
101 (2)	VEK8783	SPEAKER U.	1	
102 (2)	VGQ2839	BARRIER	1	
103 (2)	VGQ5049	SPEAKER PROTECT SHEET	1	
104 (2)	VGQ5463	GRIP BELT PIECE	1	
105 (2)	VKF3110	MECHA. ADJ. PIECE	1	
106 (2)	VMP6078	SPEAKER FIXING ANGLE	1	
107 (2)	VMP6094	MIC U. ANGLE	1	
108 (2)	VXA6129	DOOR ANGLE (F) U.	1	
109 (2)	VXA6130	DOOR ANGLE (R) U.	1	
110 (2)	VXA6161	OUT HOLDER U.	1	
111 (2)	VXL2874	COVER LINK U.	1	
112 (2)	VXL2875	EJECT U.	1	
113 (2)	VYC0812	GRIP BELT U.	1	
114 (2)	VYK9147	GRIP CASE (1) U.	1	
115 (2)	VGP5202	CASSETTE COVER (S)	1	
116 (2)	VXU1547	CASSETTE COVER LOCK U.	1	
117 (2)	VGQ4836	RUBBER FIXING PIECE	1	
118 (2)	VGQ5396	RUBBER HOLDER	1	
119 (2)	VMG1112	RUBBER	1	
120 (2)	VGL0849	POWER PANEL LIGHT	3	
121 (2)	VGU8215	POWER LOCK BUTTON	1	
122 (2)	VGU8241	POWER KNOB	1	
123 (2)	VGU8242	POWER LOCK PIECE	1	
124 (2)	VGU8256	FULLAUTO KNOB	1	
125 (2)	VKM5350	GRIP PIECE	1	
126 (2)	VMB3201	POWER LOCK SPRING	1	
127 (2)	VMP6095	EARTH PLATE	1	

128 (2)	VYK8666	S/S BUTTON U.	1	
129 (2)	VYK9331	CASSETTE COVER (C) U.	1	
130 (2)	VYP7359	HOOD CAP U.	1	
131 (2)	VXY1539	MECHA. U.	1	
132 (2)	VMD3345	TRIPOD FRAME	1	
133 (2)	VYQ1766	MECHA. FRAME (1) U.	1	
134 (2)	VYQ1904	LENS FRAME U.	1	
135 (2)	VWJ1330	FRONT FLEX.	1	
B101 (2)	VHD1133	SCREW	3	
B102 (2)	VHD1328	SCREW	3	
B103 (2)	VHD1205	SCREW	2	
B104 (2)	VHD1261	SCREW	1	
B105 (2)	VHD1274	SCREW	2	
B106 (2)	VHD1279	SCREW	1	
B107 (2)	XQN14+B2FN	SCREW	2	
B108 (2)	XQN14+B14FN	SCREW	2	
B109 (2)	XQN16+A2FZ	SCREW	1	
B110 (2)	XQN16+BJ4FZ	SCREW	2	
B111 (2)	XQN16+BJ6FZ	SCREW	2	
B112 (2)	XQN16+B2FZ	SCREW	3	
B113 (2)	XQN16+B3FZ	SCREW	2	
B114 (2)	XQN16+BJ35	SCREW	1	
B115 (2)	XQN16+AJ8FZ	SCREW	1	
B116 (2)	XQN16+BJ4FZ	SCREW	2	
B117 (2)	XQN16+BJ4FN	SCREW	2	
B118 (2)	XQN16+B4FZ	SCREW	4	

•@

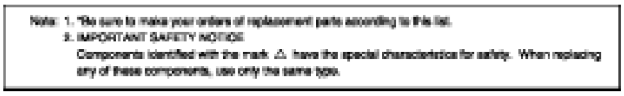
TOP PREVIOUS NEXT


G
F
E
D
113
104
121
126
B115
122
124
B109
123
127
120
127
105
E S/S Power Flex. C.B.A.
128
125
119
117
B114
130
103
101
118
B110
B110
106
129
102
114
B111
B108
B108
110
Camera Lens Unit
E Mic Unit
107
B111
B116
B116
B112
B103
B118


B118
B112
B102
135
111
B106
B118
B105
B113
B103
112
B105
C
134
B102
B112
115
B104
109
B102
B107
116
B113
B107
133
B
108
E Main C.B.A.
B101
131
E Multi Jack C.B.A.
E Drive C.B.A.
B101
A
B117
B101
B117
B118
132
1
2
3
4
5

14.3 LCD SECTION PARTS LIST

TOP PREVIOUS NEXT

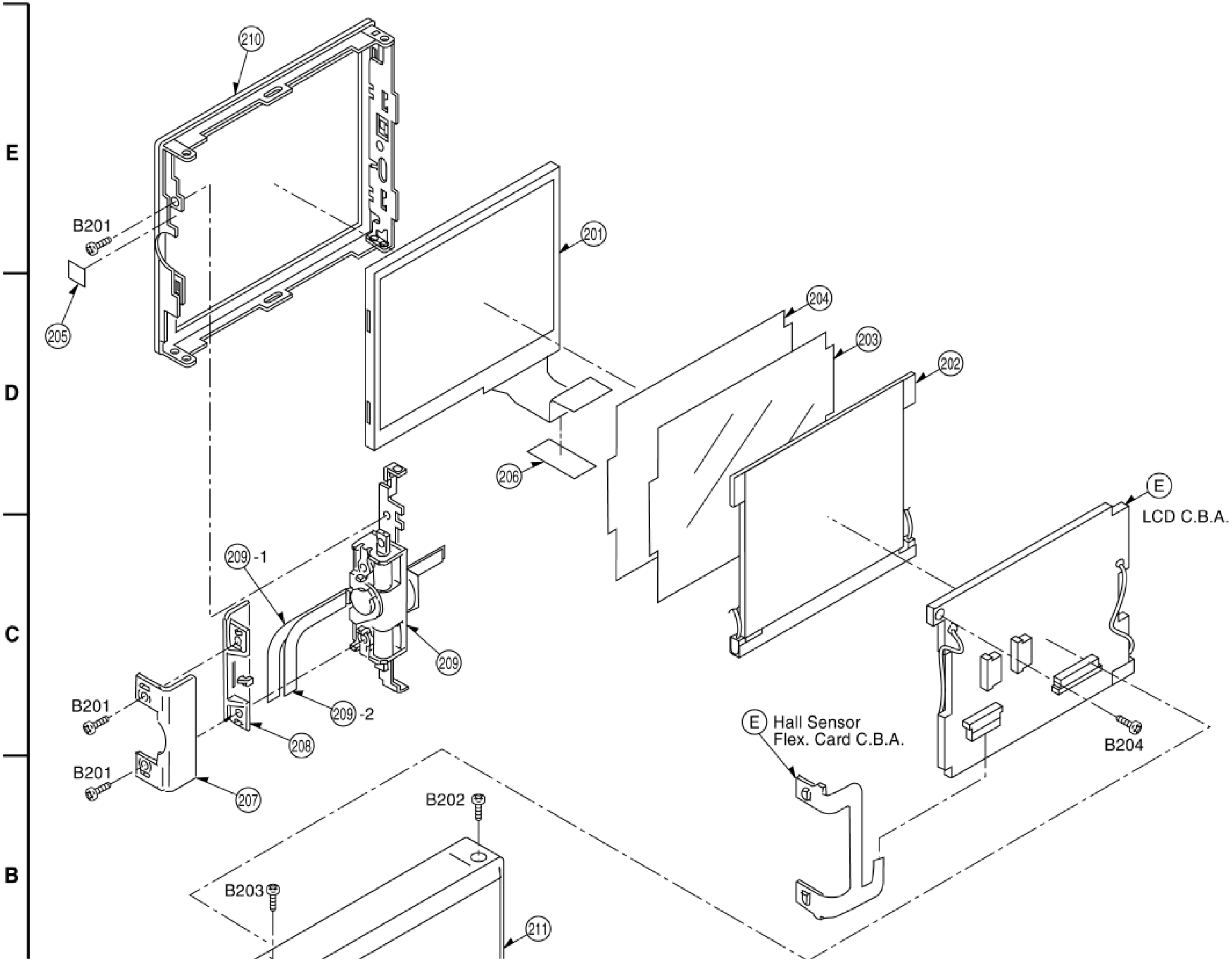


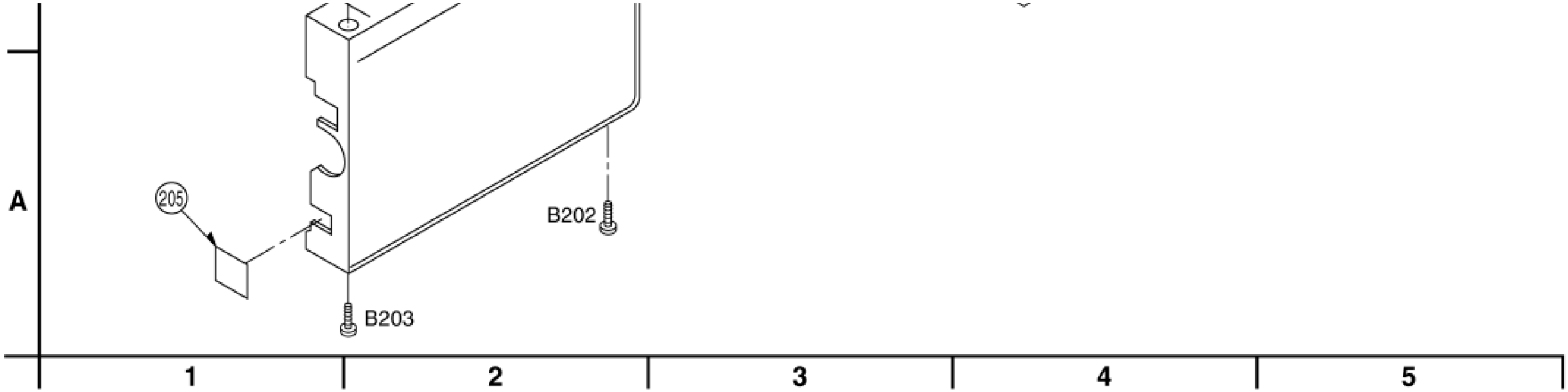
Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
201 (3)	ALP214FXX00	MONITOR LCD PANEL U.	1	
202 (3)	VEK8756	BACK LIGHT U.	1	
203 (3)	VGL0852	SPREAD SHEET	1	
204 (3)	VGL0853	DEVIATION SHEET	1	
205 (3)	VGQ4758	PROTECT SHEET	2	
206 (3)	VGQ5523	BARRIER	1	
207 (3)	VGQ5394	HINGE COVER (UPPER)	1	
208 (3)	VGQ5395	HINGE COVER (LOWER)	1	
209 (3)	VXD0310	LCD HINGE (1) U.	1	
209-1(3)	VWJ1328	MONITOR FLEX.(OPERATION)	1	
209-2(3)	VWJ1329	MONITOR FLEX.(SIGNAL)	1	
210 (3)	VYK9163	LCD CASE U.(LOWER)	1	
211 (3)	VYK9341	LCD CASE U.(UPPER)	1	
B201 (3)	VHD1209	SCREW	3	
B202 (3)	VHD1215	SCREW	2	
B203 (3)	VHD1273	SCREW	2	
B204 (3)	XQN16+B3FN	SCREW	1	

•@

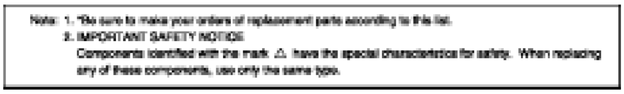
TOP PREVIOUS NEXT


E
D
C
B
210
B201
205
201
204
203
202
206
E
LCD C.B.A.
209 -1
209
209 -2
208
B201
B201
207
E Hall Sensor
Flex. Card C.B.A.
B204
B202
B203
211


A
B202
B203

14.4 CAMERA LENS SECTION PARTS LIST

TOP PREVIOUS NEXT

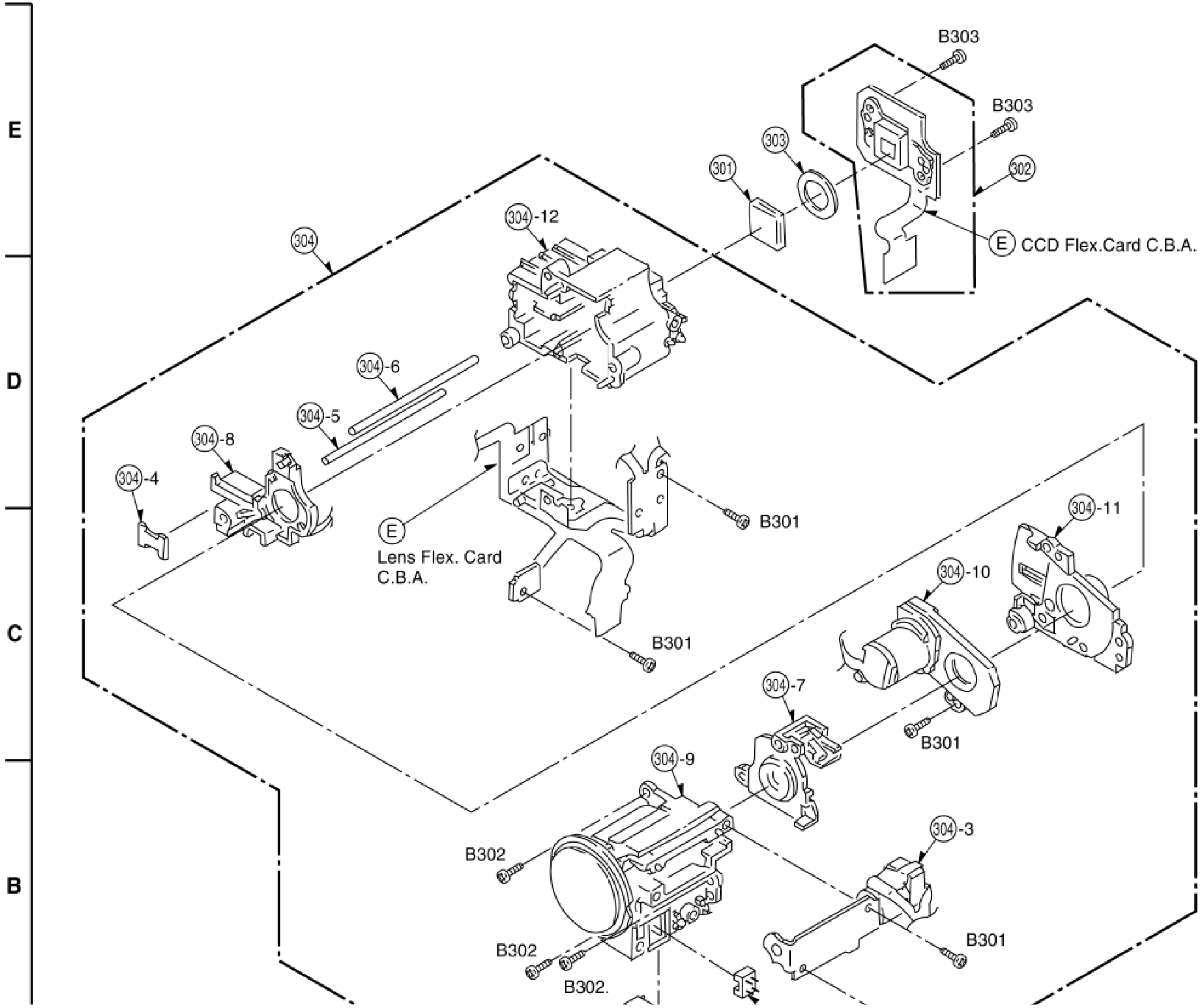


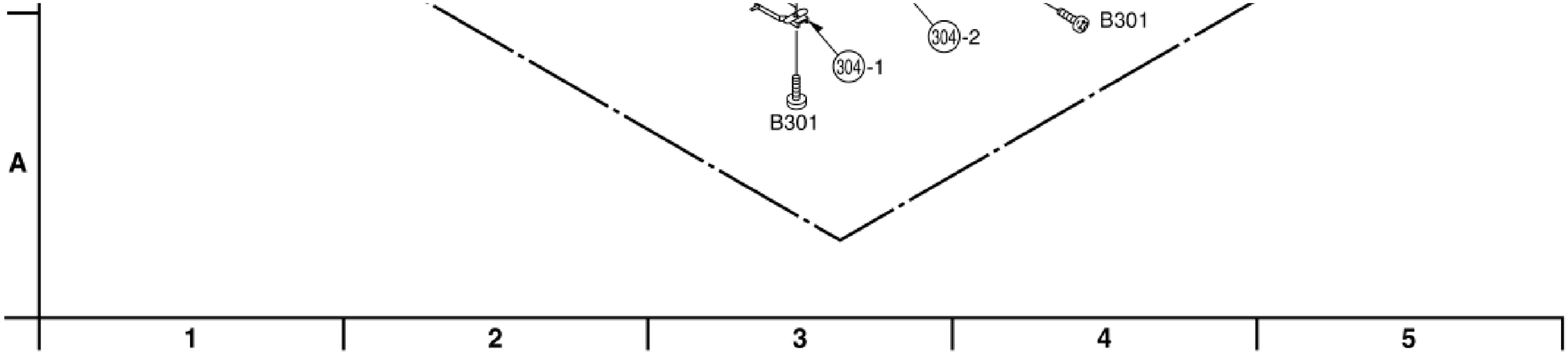
Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
301 (4)	VDL1086	CRYSTAL FILTER	1	
302 (4)	VEK8901	CCD U.	1	
303 (4)	VMX2973	CCD CUSHION	1	
304 (4)	VXW0450	LENS U.	1	
304-1 (4)	VEK8449	MR SENSOR	1	
304-2 (4)	CNA1312K01VT	PHOTO SENSOR	1	
304-3 (4)	VEM0688	ZOOM MOTOR	1	
304-4 (4)	VMA9961	SIDE YOKE	1	
304-5 (4)	VMS6555	GUIDE POLE	1	
304-6 (4)	VMS6710	GUIDE POLE (A)	1	
304-7 (4)	VXP1940	2ND MOVING FRAME U.	1	
304-8 (4)	VXP1942	4TH MOVING FRAME U.	1	
304-9 (4)	VXQ0838	MAIN FRAME U.	1	
304-10(4)	VXL2895	IRIS U.	1	
304-11(4)	VXQ0840	3RD LENS FRAME U.	1	
304-12(4)	VXQ0841	MASTER FLANGE U.	1	
B301 (4)	XQN16+BJ5	SCREW	6	
B302 (4)	XQN16+BJ8	SCREW	3	
B303 (4)	XQN16+CJ4FY	SCREW	2	

•@

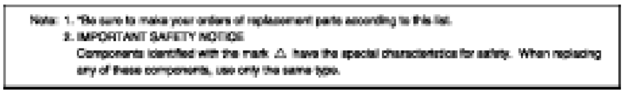
TOP PREVIOUS NEXT


E
D
C
B
B303
B303
303
301
302
E CCD Flex.Card C.B.A.
304-12
304
304-6
304-5
304-8
304-4
E
Lens Flex. Card
C.B.A.
B301
304-11
304-10
B301
304-7
B301
304-9
304-3
B302
B302
B302.
B301


B301
304-2
304-1
B301
A
1
2
3
4
5

14.5 PACKING PARTS& ACCESSORIES SECTION PARTS LIST

TOP PREVIOUS NEXT



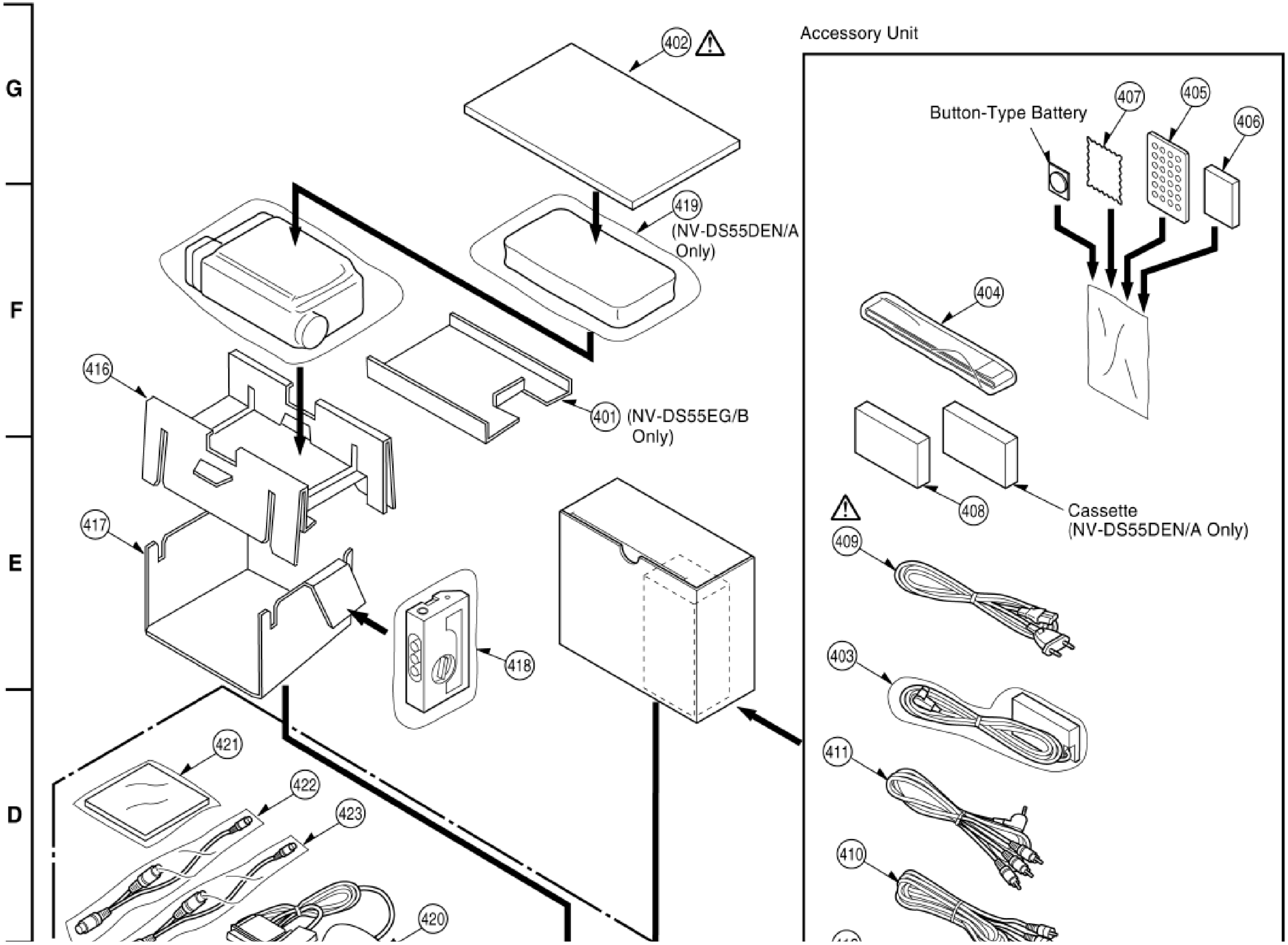
Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

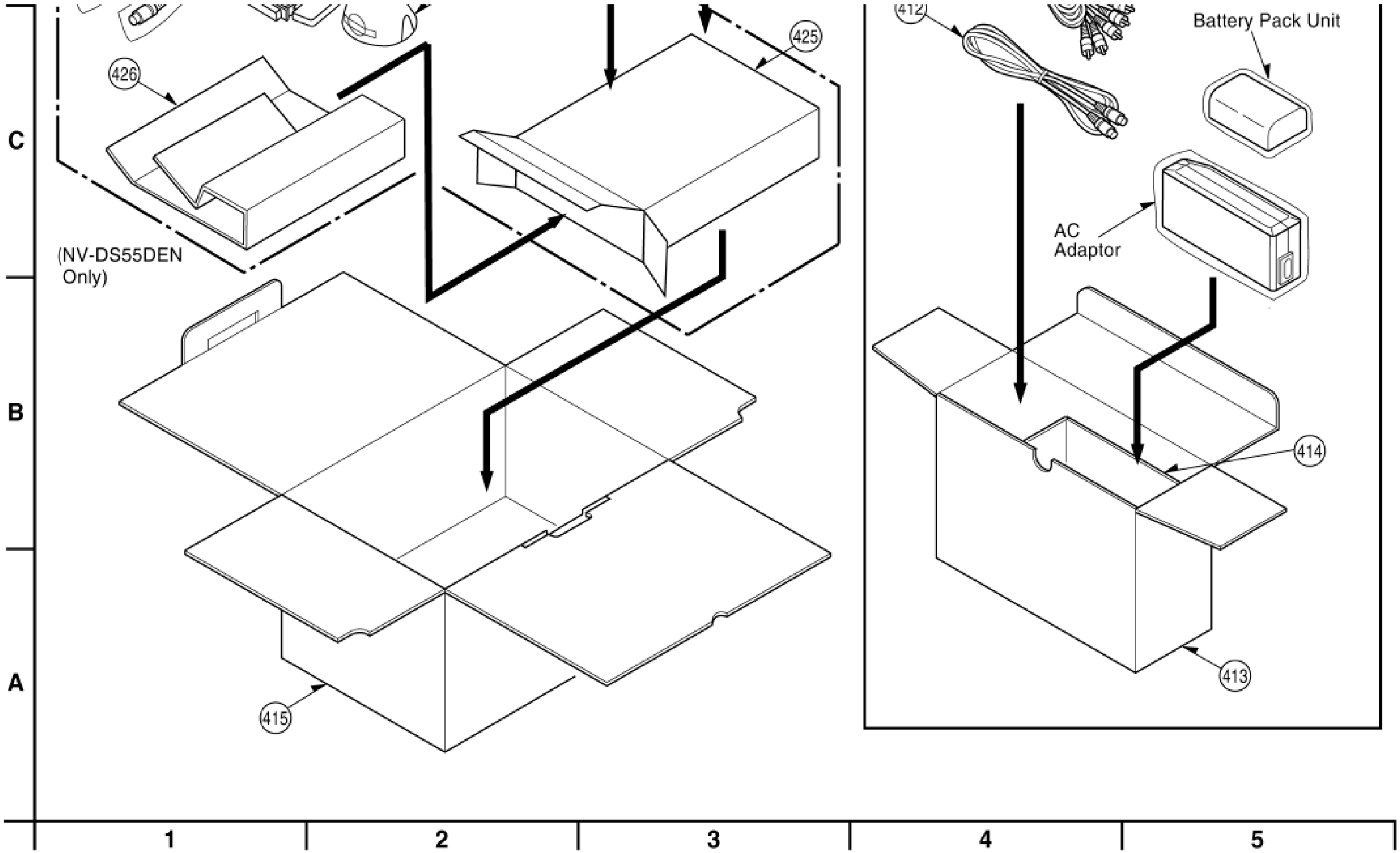
Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
401 (5)	VPN5347	PAD	1	NV-DS55EG/B
402 (5)	VQT8416	OPERATING INSTRUCTIONS	1	NV-DS55EG⚠
		(ENGLISH,GERMAN)		
402 (5)	VQT8417	OPERATING INSTRUCTIONS	1	NV-DS55EG⚠
		(FRENCH,SPANISH)		
402 (5)	VQT8418	OPERATING INSTRUCTIONS	1	NV-DS55EG⚠
		(ITALIAN,DUTCH)		
402 (5)	VQT8419	OPERATING INSTRUCTIONS	1	NV-DS55EG⚠
		(SWEDISH,DANISH)		
402 (5)	VQT8420	OPERATING INSTRUCTIONS	1	NV-DS55B⚠
		(ENGLISH)		
402 (5)	VQT8421	OPERATING INSTRUCTIONS	1	NV-DS55DEN⚠
		(ENGLISH,CHINESE)		
402 (5)	VQT8422	OPERATING INSTRUCTIONS	1	NV-DS55DEN⚠
		(RUSSIAN,ARABIC)		
402 (5)	VQT8423	OPERATING INSTRUCTIONS	1	NV-DS55A⚠
		(ENGLISH)		
403 (5)	VEK8925	DC INPUT CABLE	1	
404 (5)	VFC2905	SHOULDER BELT	1	
405 (5)	VEQ2289	REMOTE CONTROLLER	1	NV-DS55EG/B
405 (5)	VEQ2290	REMOTE CONTROLLER	1	NV-DS55DEN/A
406 (5)	VFA0306	MULTI MEDIA CARD U.	1	
407 (5)	VFC1792	CLEANING TISSUE	1	
408 (5)	VFK1451	HEAD CLEANER	1	
409 (5)	VJA0664	AC MAIN CABLE	1	NV-DS55EG⚠
409 (5)	VJA0940	AC MAIN CABLE	1	NV-DS55B/DEN⚠

409 (5)	VJA0754	AC MAIN CABLE	1	NV-DS55A ⚠
410 (5)	VJA0788	AV CABLE	1	
411 (5)	VJA1028	AV 4-PIN CABLE	1	
412 (5)	VJA1120	S-VIDEO CABLE	1	
413 (5)	VPN5348	ACCESSORIES PACKING	1	
414 (5)	VPN5349	PAD	1	
415 (5)	VPK2320	PACKING	1	NV-DS55EG
415 (5)	VPK2321	PACKING	1	NV-DS55B
415 (5)	VPK2322	PACKING	1	NV-DS55DEN
415 (5)	VPK2323	PACKING	1	NV-DS55A
416 (5)	VPN5350	CUSHION (UPPER)	1	
417 (5)	VPN5351	CUSHION (LOWER)	1	
418 (5)	VSK0561	OUTPUT TERMINAL BOX	1	
419 (5)	VFC2924	SOFT BAG	1	NV-DS55DEN/A
420 (5)	VEQ2394	MMC READER/WRITER	1	NV-DS55DEN
421 (5)	VFV0158	MMC DRIVER SOFT	1	NV-DS55DEN
422 (5)	VJA1135	PS/2 Y CABLE	1	NV-DS55DEN
423 (5)	VJA1136	AT Y CABLE	1	NV-DS55DEN
425 (5)	VPK2327	PACKING	1	NV-DS55DEN
426 (5)	VPN5355	PAD	1	NV-DS55DEN
	VFK1440	FLAT CABLE 10P	1	
	VFK1491	FLAT CABLE 27P	2	
	VFK1460	FLAT CABLE 20P	1	
	VFK1442	FLAT CABLE 21P	3	
	VFK1463	FLAT CABLE 90P	1	
	VFK1173	FLAT CABLE 14P	1	
	VFK1452	FLAT CABLE 17P	1	
	VFA0272	232C (M3) I/F CABLE	1	
	VFK1308E	MEASURING BOARD	1	
	VFK1309	EVR CONNECTION BOARD	1	
	VFK1317	FLAT CABLE 30P	2	
	VJA0941	DC OUTPUT CABLE	1	FOR AC ADAPTOR
	VFK1164TAR3A	SETUP RING	1	FOR COLLIMATOR
	VFM3110EDS	ALIGNMENT TAPE	1	

•@

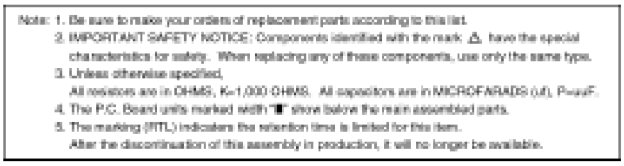
TOP PREVIOUS NEXT


G
F
E
D
(NV-DS55DEN/A Only)
(NV-DS55EG/B Only)
Accessory Unit
Button-Type Battery
Cassette
(NV-DS55DEN/A Only)


C
B
A
(NV-DS55DEN Only)
Battery Pack Unit
AC Adaptor

14.6 ELECTRICAL PARTS LIST

TOP PREVIOUS



Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE: Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICROFARADS (uf), P=uuF.
4. The P.C. Board units marked width "■" show below the main assembled parts.
5. The marking (RTL) indicates the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
	VEP03F07B	MAIN C.B.A.	1	(RTL) NV-DS55EG/B
	VEP03F07C	MAIN C.B.A.	1	(RTL) NV-DS55A/DEN
	VEP01849B	POWER C.B.A.	1	(RTL)
	VEP26225B	LCD C.B.A.	1	(RTL)
	VEK8781	MIC UNIT	1	
	VEP28261D	EVF C.B.A.	1	(RTL)
	VEP02567A	DRIVE C.B.A.	1	(RTL)
	VEP000D0A	MMC/AV JACK C.B.A.	1	(RTL)
	VEP06D07A	S/S POWER FLEX.CARD C.B.A.	1	(RTL)
	VEP22290A	CCD FLEX. CARD C.B.A.	1	(RTL)
	VEP000C2A	TOP OPERATION C.B.A.	1	(RTL)

	VEP000A5A	PHOTO C.B.A.	1	(RTL)
	VEP000C1A	MULTI JACK C.B.A.	1	(RTL)
	VEK8892	LENS FLEX. CARD C.B.A.	1	(RTL)
	VEP06D10A	HALL SENSOR FLEX. CARD	1	(RTL)
	VEP03F07B	MAIN C.B.A.		(RTL) NV-DS55EG/B
	VEP03F07C	MAIN C.B.A.		(RTL) NV-DS55A/DEN
FP601	VJS3971B017	CONNECTOR (FEMALE) 17P	1	
FP602	VJS3971B021	CONNECTOR (FEMALE) 21P	1	
FP603	VJS3971B021	CONNECTOR (FEMALE) 21P	1	
FP701	VJS3971B027	CONNECTOR (FEMALE) 27P	1	
FP2204	VJS4273B008	CONNECTOR (FEMALE) 8P	1	
FP2205	VJS4273B012	CONNECTOR (FEMALE) 12P	1	
FP2206	VJS4036B010	CONNECTOR (FEMALE) 10P	1	
FP2207	VJS3971B021	CONNECTOR (FEMALE) 21P	1	
FP3201	VJS3319B024	CONNECTOR (FEMALE) 24P	1	
FP4001	VJS3971B027	CONNECTOR (FEMALE) 27P	1	
JK3801	VJJ0651	DV JACK	1	
PP1001	VJP4029D090	CONNECTOR (MALE) 90P	1	
PP3001	VJP4119C060	CONNECTOR (MALE) 60P	1	
PP3002	VJP4009C030	CONNECTOR (MALE) 30P	1	
PS201	VJS4009A020	CONNECTOR (FEMALE) 20P	1	
PS2001	VJS4288A040	CONNECTOR (FEMALE) 40P	1	
PS2202	VJS4009A020	CONNECTOR (FEMALE) 20P	1	
	VEP01849B	POWER C.B.A.		(RTL)
C1001	ECUM1C106VBP	C.CAPACITOR CH 16V 10U	1	

C1003	ECUM1C106VBP	C.CAPACITOR CH 16V 10U	1	
C1005	ECUM1A335KBN	C.CAPACITOR CH 10V 3.3U	1	
C1011	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1012	ECUM1A335KBN	C.CAPACITOR CH 10V 3.3U	1	
C1013	ECUX1E331KBQ	C.CAPACITOR CH 25V 330P	1	
C1014	ECUX1C223KBQ	C.CAPACITOR CH 16V 0.022U	1	
C1016	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1018	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1021	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1022	ECUM1A335KBN	C.CAPACITOR CH 10V 3.3U	1	
C1023	ECUX1E331KBQ	C.CAPACITOR CH 25V 330P	1	
C1024	ECUX1C223KBQ	C.CAPACITOR CH 16V 0.022U	1	
C1025	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
C1026	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1027	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1029	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1031	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1032	ECUM1A335KBN	C.CAPACITOR CH 10V 3.3U	1	
C1033	ECUX1E222KBQ	C.CAPACITOR CH 25V 2200P	1	
C1036	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1037	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1041	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1042	ECUM1A335KBN	C.CAPACITOR CH 10V 3.3U	1	
C1043	ECUX1E331KBQ	C.CAPACITOR CH 25V 330P	1	
C1044	ECUX1C223KBQ	C.CAPACITOR CH 16V 0.022U	1	
C1045	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
C1046	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1052	ECUM1E105KBM	C.CAPACITOR CH 25V 1U	1	
C1053	ECUX1E222KBQ	C.CAPACITOR CH 25V 2200P	1	
C1055	ECUM1C106VBP	C.CAPACITOR CH 16V 10U	1	
C1056	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1057	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1063	ECUM1A225KBN	C.CAPACITOR CH 10V 2.2U	1	
C1064	ECUM1A225KBN	C.CAPACITOR CH 10V 2.2U	1	
C1065	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1066	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1085	ECUM1C105KBM	C.CAPACITOR CH 16V 1U	1	
C1092	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1093	ECST0JY226Z	T.CAPACITOR CH 6.3V 22U	1	
C1094	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	

C1101	ECUX1H101JCQ	C.CAPACITOR CH 50V 100P	1	
C1102	ECUX1A334KBV	C.CAPACITOR CH 10V 0.33U	1	
C1103	ECUX1A473KBQ	C.CAPACITOR CH 10V 0.047U	1	
C1104	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1105	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1106	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1107	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1108	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C1111	ECUX1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C1112	ECUX1E471KBQ	C.CAPACITOR CH 25V 470P	1	
C1113	ECUX1H151JCQ	C.CAPACITOR CH 50V 150P	1	
C1114	ECUX1H390JCQ	C.CAPACITOR CH 50V 39P	1	
C1117	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1118	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
C1121	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C1122	ECUX1E472KBQ	C.CAPACITOR CH 25V 4700P	1	
C1123	ECUX1H151JCQ	C.CAPACITOR CH 50V 150P	1	
C1124	ECUX1H390JCQ	C.CAPACITOR CH 50V 39P	1	
C1125	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1128	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1129	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1131	ECUX1E223KBV	C.CAPACITOR CH 25V 0.022U	1	
C1132	ECUX1E471KBQ	C.CAPACITOR CH 25V 470P	1	
C1133	ECUX1H151JCQ	C.CAPACITOR CH 50V 150P	1	
C1134	ECUX1H390JCQ	C.CAPACITOR CH 50V 39P	1	
C1141	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C1142	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C1143	ECUX1H151JCQ	C.CAPACITOR CH 50V 150P	1	
C1144	ECUX1H390JCQ	C.CAPACITOR CH 50V 39P	1	
C1150	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C1151	ECUX1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C1152	ECUX1C822KBQ	C.CAPACITOR CH 16V 8200P	1	
C1153	ECUX1H151JCQ	C.CAPACITOR CH 50V 150P	1	
C1154	ECUX1H820JCQ	C.CAPACITOR CH 50V 82P	1	
C1155	ECUM1A225KBN	C.CAPACITOR CH 10V 2.2U	1	
C1156	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
D1051	SB05-05CP	DIODE	1	
D1052	1SS355	DIODE	1	
D1091	1SS355	DIODE	1	
D1101	MA8120-L	DIODE	1	

D1151	MA8160-M	DIODE	1	
D1152	1SS355	DIODE	1	
FP1001	VJS4274B015	CONNECTOR (FEMALE) 15P	1	
FP1002	VJS4273B014	CONNECTOR (FEMALE) 14P	1	
IC1001	BA9734AKV	IC	1	
IC1002	NJM2406F	IC	1	
IC1403	PQ20VZ1U	IC	1	
IP1001	VSF0233F31	IC PROTECTOR	1	⚠
L1001	VLQ0827M3R9	COIL 3.9UH	1	
L1011	VLQ0827M470	COIL 47UH	1	
L1012	VLQ0779M4R7	COIL 4.7UH	1	
L1014	VLQ0779K100	COIL 10UH	1	
L1017	VLQ0464K100	COIL 10UH	1	
L1021	VLQ0827M150	COIL 15UH	1	
L1022	VLQ0827M4R7	COIL 4.7UH	1	
L1023	VLQ0779M4R7	COIL 4.7UH	1	
L1025	VLQ0780K100	COIL 10UH	1	
L1026	VLQ0779K100	COIL 10UH	1	
L1028	VLQ0779K100	COIL 10UH	1	
L1029	VLQ0779K100	COIL 10UH	1	
L1031	VLQ0827M560	COIL 56UH	1	
L1032	VLQ0779K100	COIL 10UH	1	
L1033	VLQ0779M4R7	COIL 4.7UH	1	
L1041	VLQ0827M150	COIL 15UH	1	
L1042	VLQ0810M4R7	COIL 4.7UH	1	
L1051	VLQ0779K331	COIL 330UH	1	
L1052	VLQ0780K100	COIL 10UH	1	
L1061	VLQ0827M330	COIL 33UH	1	
L1062	VLQ0827M820	COIL 82UH	1	
L1081	VLQ0779K331	COIL 330UH	1	
L1091	VLQ0779K100	COIL 10UH	1	
LB1001	VLP0332A420	CHIP BEAD	1	
PS1001	VJS4029A090	CONNECTOR (FEMALE) 90P	1	

Q1011	FP102	TRANSISTOR	1	
Q1021	FP102	TRANSISTOR	1	
Q1022	2SK2151	TRANSISTOR	1	
Q1031	FP102	TRANSISTOR	1	
Q1041	FP102	TRANSISTOR	1	
Q1042	2SK2151	TRANSISTOR	1	
Q1051	2SB798A	TRANSISTOR	1	
Q1052	2SB970X	TRANSISTOR	1	
Q1053	2SD2216	TRANSISTOR	1	
Q1054	XP1401	TRANSISTOR-TRANSISTOR	1	
Q1055	2SD2216	TRANSISTOR	1	
Q1056	2SB1462-R	TRANSISTOR	1	
Q1061	FP102	TRANSISTOR	1	
Q1062	FP102	TRANSISTOR	1	
Q1091	2SB798	TRANSISTOR	1	
Q1092	XP1501	TRANSISTOR-TRANSISTOR	1	
Q1093	2SD2216	TRANSISTOR	1	
Q1101	2SB1462-R	TRANSISTOR	1	
Q1251	2SB970X	TRANSISTOR	1	
Q1252	XP1501	TRANSISTOR-TRANSISTOR	1	
QR1001	UN9111	TRANSISTOR-RESISTOR	1	
QR1004	UN9115	TRANSISTOR-RESISTOR	1	
QR1050	UN9213	TRANSISTOR-RESISTOR	1	
QR1091	UN2130X	TRANSISTOR-RESISTOR	1	
QR1101	UN9214J	TRANSISTOR-RESISTOR	1	
R1003	ERJ2GEJ225	M.RESISTOR CH 1/16W 2.2M	1	
R1005	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R1008	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1010	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1011	ERJ6RBB682	M.RESISTOR CH 1/10W 6.8K	1	
R1012	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1013	ERJ3RBD391	M.RESISTOR CH 1/16W 390	1	
R1014	ERJ6RBB272	M.RESISTOR CH 1/10W 2.7K	1	
R1015	ERJ2GEJ331	M.RESISTOR CH 1/16W 330	1	
R1016	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R1020	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1021	ERJ6RBB272	M.RESISTOR CH 1/10W 2.7K	1	
R1022	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1023	ERJ3RBD391	M.RESISTOR CH 1/16W 390	1	

R1024	ERJ6RBB272	M.RESISTOR CH 1/10W 2.7K	1	
R1025	ERJ2GEJ331	M.RESISTOR CH 1/16W 330	1	
R1026	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R1030	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R1031	ERJ6RBB332	M.RESISTOR CH 1/10W 3.3K	1	
R1032	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R1033	ERJ3RBD331	M.RESISTOR CH 1/16W 330	1	
R1034	ERJ6RBB272	M.RESISTOR CH 1/10W 2.7K	1	
R1040	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1041	ERJ6RBB152	M.RESISTOR CH 1/10W 1.5K	1	
R1042	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1043	ERJ3RBD511	M.RESISTOR CH 1/16W 510	1	
R1044	ERJ6RBB272	M.RESISTOR CH 1/10W 2.7K	1	
R1045	ERJ2GEJ331	M.RESISTOR CH 1/16W 330	1	
R1050	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1051	ERJ6RBB273	M.RESISTOR CH 1/10W 27K	1	
R1052	ERJ2RKD820	M.RESISTOR CH 1/16W 82	1	
R1053	ERJ3RBD151	M.RESISTOR CH 1/16W 150	1	
R1054	ERJ6RBB272	M.RESISTOR CH 1/10W 2.7K	1	
R1056	ERJ2RHD273	M.RESISTOR CH 1/16W 27K	1	
R1057	ERJ2RHD113	M.RESISTOR CH 1/16W 11K	1	
R1058	ERJ2RHD561	M.RESISTOR CH 1/16W 560	1	
R1059	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1	
R1090	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R1091	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R1092	ERJ2GEJ152	M.RESISTOR CH 1/16W 1.5K	1	
R1094	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1	
R1095	ERJ2GEJ221	M.RESISTOR CH 1/16W 220	1	
R1096	ERJ6RBB682	M.RESISTOR CH 1/10W 6.8K	1	
R1097	ERJ3RBD821	M.RESISTOR CH 1/16W 820	1	
R1098	ERJ6RBB562	M.RESISTOR CH 1/10W 5.6K	1	
R1101	ERJ2RHD223	M.RESISTOR CH 1/16W 22K	1	
R1102	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R1103	ERJ2GEJ273	M.RESISTOR CH 1/16W 27K	1	
R1104	ERJ2GEJ123	M.RESISTOR CH 1/16W 12K	1	
R1107	ERJ2GEJ225	M.RESISTOR CH 1/16W 2.2M	1	
R1108	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1109	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R1111	ERJ2GEJ151	M.RESISTOR CH 1/16W 150	1	
R1112	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1	

R1121	ERJ2GEJ151	M.RESISTOR CH 1/16W 150	1	
R1122	ERJ2GEJ682	M.RESISTOR CH 1/16W 6.8K	1	
R1131	ERJ2GEJ151	M.RESISTOR CH 1/16W 150	1	
R1132	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1	
R1141	ERJ2GEJ151	M.RESISTOR CH 1/16W 150	1	
R1142	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R1151	ERJ2GEJ151	M.RESISTOR CH 1/16W 150	1	
R1152	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1	
R1153	ERJ2RHD123	M.RESISTOR CH 1/16W 12K	1	
R1154	ERJ2RHD473	M.RESISTOR CH 1/16W 47K	1	
R1155	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R1156	ERJ2GEJ332	M.RESISTOR CH 1/16W 3.3K	1	
R1157	ERJ2GEJ272	M.RESISTOR CH 1/16W 2.7K	1	
R1158	ERJ2RHD471	M.RESISTOR CH 1/16W 470	1	
R1159	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1	
R1192	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R1251	ERJ2GEJ224	M.RESISTOR CH 1/16W 220K	1	
R1252	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1253	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1254	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1255	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1256	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R1257	ERJ2GEJ332	M.RESISTOR CH 1/16W 3.3K	1	
R1258	ERJ2GEJ272	M.RESISTOR CH 1/16W 2.7K	1	
R1401	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R1402	ERJ2RHD102	M.RESISTOR CH 1/16W 1K	1	
R1403	ERJ2RHD102	M.RESISTOR CH 1/16W 1K	1	
R1404	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1	
R1405	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
T1051	VTP0510	DC/DC TRANSFORMER	1	
	VEP26225B	LCD C.B.A.		(RTL)
C901	ECUM1C106VBP	C.CAPACITOR CH 16V 10U	1	
C902	ECST0JX476Z	T.CAPACITOR CH 6.3V 47U	1	
C903	ECST0JY226Z	T.CAPACITOR CH 6.3V 22U	1	
C904	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C905	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C906	ECUM1C106VBP	C.CAPACITOR CH 16V 10U	1	

C907	ECST0JY335Z	T.CAPACITOR CH 6.3V 3.3U	1	
C908	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C909	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C910	ECUX0J474KBV	C.CAPACITOR CH 6.3V 0.47U	1	
C911	ECUX0J474KBV	C.CAPACITOR CH 6.3V 0.47U	1	
C912	ECUX0J474KBV	C.CAPACITOR CH 6.3V 0.47U	1	
C913	ECUX0J474KBV	C.CAPACITOR CH 6.3V 0.47U	1	
C914	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C915	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C916	ECUX1A105VBV	C.CAPACITOR CH 10V 1U	1	
C917	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C918	ECUX1A473KBQ	C.CAPACITOR CH 10V 0.047U	1	
C919	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C923	ECUX1E102KBQ	C.CAPACITOR CH 25V 1000P	1	
C924	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C925	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C926	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C927	ECUX1H560JCQ	C.CAPACITOR CH 50V 56P	1	
C928	ECUX1H560JCQ	C.CAPACITOR CH 50V 56P	1	
C929	ECUX1H560JCQ	C.CAPACITOR CH 50V 56P	1	
C930	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C931	ECUX1H390JCQ	C.CAPACITOR CH 50V 39P	1	
C932	ECUX1H221JCQ	C.CAPACITOR CH 50V 220P	1	
C934	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C935	ECUX1E682KBQ	C.CAPACITOR CH 25V 6800P	1	
C937	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C938	ECUX1H101JCQ	C.CAPACITOR CH 50V 100P	1	
C939	ECUX1H331JCV	C.CAPACITOR CH 50V 330P	1	
C940	ECUX1H560JCQ	C.CAPACITOR CH 50V 56P	1	
C941	ECUX1H100CCQ	C.CAPACITOR CH 50V 10P	1	
C942	ECUM1C474KBN	C.CAPACITOR CH 16V 0.47U	1	
C943	ECUX1A224KBV	C.CAPACITOR CH 10V 0.22U	1	
C944	ECUX1A224KBV	C.CAPACITOR CH 10V 0.22U	1	
C945	ECUX1E332KBQ	C.CAPACITOR CH 25V 3300P	1	
C946	ECUM1C106VBP	C.CAPACITOR CH 16V 10U	1	
C947	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C948	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C949	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C950	ECUM1C105KBN	C.CAPACITOR CH 10V 1U	1	
C951	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	

C952	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
D901	MA338	DIODE	1	
D902	MA6S121	DIODE	1	
D903	MA6S121	DIODE	1	
D904	MA159A	DIODE	1	
D905	RB520S30	DIODE	1	
D906	RB520S30	DIODE	1	
FP901	VJS4194B026	CONNECTOR (FEMALE) 26P	1	
FP903	VJS3971B021	CONNECTOR (FEMALE) 21P	1	
FP904	VJS3971B017	CONNECTOR (FEMALE) 17P	1	
FP905	VJS4297B006	CONNECTOR (FEMALE) 6P	1	
IC901	LV4131W	IC	1	
IC902	NJM2904V	IC	1	
IC903	TC7S04FU	IC	1	
IC904	TC7S14FU	IC	1	
IC905	SN74LV04APW	IC	1	
L901	VLQ0807K100	COIL 10UH	1	
L902	VLQ0807K100	COIL 10UH	1	
L903	VLQ0807K100	COIL 10UH	1	
L904	VLQ0807K100	COIL 10UH	1	
L907	VLQ0426J3R9	COIL 3.9UH	1	
Q901	2SD2216	TRANSISTOR	1	
Q902	2SK3065T100	TRANSISTOR	1	
Q904	XP1501	TRANSISTOR-TRANSISTOR	1	
Q905	2SB970X	TRANSISTOR	1	
QR901	UN9210	TRANSISTOR-RESISTOR	1	
QR902	UN9210	TRANSISTOR-RESISTOR	1	
QR903	UN9214J	TRANSISTOR-RESISTOR	1	
R901	ERJ2GEJ182	M.RESISTOR CH 1/16W 1.8K	1	
R902	ERJ2RHD152	M.RESISTOR CH 1/16W 1.5K	1	
R903	ERJ2RHD152	M.RESISTOR CH 1/16W 1.5K	1	
R904	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R905	ERJ2GEJ122	M.RESISTOR CH 1/16W 1.2K	1	
R906	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	

R907	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R908	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R909	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R910	ERJ2GEJ332	M.RESISTOR CH 1/16W 3.3K	1	
R911	ERJ2GEJ332	M.RESISTOR CH 1/16W 3.3K	1	
R912	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R913	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R914	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R915	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R916	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R917	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R918	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R919	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R920	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R921	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R922	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R923	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R924	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R925	ERJ2RHD563	M.RESISTOR CH 1/16W 56K	1	
R926	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R927	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R928	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R929	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R930	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R931	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R932	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R933	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R934	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R935	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R936	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R937	ERJ2GEJ182	M.RESISTOR CH 1/16W 1.8K	1	
R938	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R939	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R940	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R941	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R942	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R943	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R944	ERJ2GEJ152	M.RESISTOR CH 1/16W 1.5K	1	
R945	ERJ2RHD683	M.RESISTOR CH 1/16W 68K	1	
R946	ERJ2RHD563	M.RESISTOR CH 1/16W 56K	1	

R947	ERJ2RHD393	M.RESISTOR CH 1/16W 39K	1	
R951	ERJ2GEJ560	M.RESISTOR CH 1/16W 56	1	
R952	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R953	ERJ3GEYJ823	M.RESISTOR CH 1/16W 82K	1	
R954	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R955	ERJ3RBD333	M.RESISTOR CH 1/16W 33K	1	
R956	ERJ3RBD103	M.RESISTOR CH 1/16W 10K	1	
R957	ERJ3RBD101	M.RESISTOR CH 1/16W 100	1	
R958	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R959	ERJ2GEJ272	M.RESISTOR CH 1/16W 2.7K	1	
R960	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R961	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R962	ERJ2GEJ561	M.RESISTOR CH 1/16W 560	1	
R963	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R964	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R965	ERJ2GEJ563	M.RESISTOR CH 1/16W 56K	1	
R966	ERJ2GEJ152	M.RESISTOR CH 1/16W 1.5K	1	
R967	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R968	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R969	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R970	ERJ2GEJ562	M.RESISTOR CH 1/16W 5.6K	1	
R971	ERJ3GEYJ335	M.RESISTOR CH 1/16W 3.3M	1	
R972	ERJ2GEJ224	M.RESISTOR CH 1/16W 220K	1	
R973	ERJ8GEYJ335	M.RESISTOR CH 1/8W 3.3M	1	
R974	ERJ8GEYJ335	M.RESISTOR CH 1/8W 3.3M	1	
R975	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R976	ERJ3RBD681	M.RESISTOR CH 1/16W 680	1	
R977	ERJ3RED180	M.RESISTOR CH 1/16W 18	1	
R978	ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	1	
R979	ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R983	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R984	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R985	ERJ2RHD122	M.RESISTOR CH 1/16W 1.2K	1	
R986	ERJ2RHD182	M.RESISTOR CH 1/16W 1.8K	1	
T901	ETJ09K49AZ	CHIP TRANSFORMER	1	
T902	EFTU21R203	TRANSFORMER	1	
W901	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
		MISCELLANEOUS		

	VMZ2939	LCD BARRIER	1	
	VEK8781	MIC UNIT		
C451	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C452	ECUX0J474KBV	C.CAPACITOR CH 6.3V 0.47U	1	
C4201	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C4202	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C4203	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
C4207	ECUM1A335KBN	C.CAPACITOR CH 10V 3.3U	1	
C4212	ECST0JX476Z	T.CAPACITOR CH 6.3V 47U	1	
C4214	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C4215	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C4219	ECUX1A473KBQ	C.CAPACITOR CH 10V 0.047U	1	
C4220	ECUX1E102KBQ	C.CAPACITOR CH 25V 1000P	1	
C4221	ECUX1E102KBQ	C.CAPACITOR CH 25V 1000P	1	
C4801	ECUX1C333KBV	C.CAPACITOR CH 16V 0.033U	1	
C4802	ECUX1C823KBV	C.CAPACITOR CH 16V 0.082U	1	
C4804	ECUX1E561KBQ	C.CAPACITOR CH 25V 560P	1	
C4805	ECUX1A473KBQ	C.CAPACITOR CH 10V 0.047U	1	
C4806	ECUX1C333KBV	C.CAPACITOR CH 16V 0.033U	1	
C4807	ECUX1C823KBV	C.CAPACITOR CH 16V 0.082U	1	
C4808	ECUX1E561KBQ	C.CAPACITOR CH 25V 560P	1	
C4809	ECUX1A473KBQ	C.CAPACITOR CH 10V 0.047U	1	
C4814	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C4816	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C4817	ECST0JY226Z	T.CAPACITOR CH 6.3V 22U	1	
C4830	ECST0JY226Z	T.CAPACITOR CH 6.3V 22U	1	
C4901	ECUX1E222KBQ	C.CAPACITOR CH 25V 2200P	1	
C4902	ECUX1E222KBQ	C.CAPACITOR CH 25V 2200P	1	
C4903	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C4905	ECST0JY226Z	T.CAPACITOR CH 6.3V 22U	1	
C4908	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C4910	ECST0JY226Z	T.CAPACITOR CH 6.3V 22U	1	
C4912	ECUM1A105KBN	C.CAPACITOR CH 10V 1U	1	
C4914	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C4915	ECUX1E273KBV	C.CAPACITOR CH 25V 0.027U	1	
C4916	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C4917	ECUX1E273KBV	C.CAPACITOR CH 25V 0.027U	1	

C6401	ECUX1A473KBQ	C.CAPACITOR CH 10V 0.047U	1	
C6402	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
D451	MA132WA	DIODE	1	
D6801	CL170UR-CD	CHIP LED	1	
D6802	PH310	DIODE	1	
FL4901	VLF1486A206	FILTER	1	
FL4902	VLF1486A206	FILTER	1	
FP4801	VJS4264B027	CONNECTOR (FEMALE) 27P	1	
IC4201	NJM2151V	IC	1	
IC4801	NJM2112V	IC	1	
IR6401	VEK8283	IR RECEIVER	1	
JK4801	VJJ0414	MIC JACK	1	
L4201	VLQ0807K100	COIL 10UH	1	
L4202	VLQ0464K100	COIL 10UH	1	
L6401	VLQ0807K220	COIL 22UH	1	
P4201	VJP3172B002	CONNECTOR (MALE) 2P	1	
Q451	2SD1030	TRANSISTOR	1	
Q452	2SD2216	TRANSISTOR	1	
Q4805	2SD2216	TRANSISTOR	1	
Q4810	2SD2216	TRANSISTOR	1	
Q4811	2SD2216	TRANSISTOR	1	
Q4901	2SD2216	TRANSISTOR	1	
Q4902	2SB1462-R	TRANSISTOR	1	
Q4903	2SD2216	TRANSISTOR	1	
Q4904	2SB1462-R	TRANSISTOR	1	
Q4905	2SD2216	TRANSISTOR	1	
Q4906	2SD2216	TRANSISTOR	1	
Q4907	2SD2216	TRANSISTOR	1	
QR4903	UN9212	TRANSISTOR-RESISTOR	1	
QR4904	UN9212	TRANSISTOR-RESISTOR	1	

R451	ERJ3GEYJ225	M.RESISTOR CH 1/16W 2.2K	1	
R452	ERJ2GEJ334	M.RESISTOR CH 1/16W 330K	1	
R453	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1	
R454	ERJ2GEJ182	M.RESISTOR CH 1/16W 1.8K	1	
R455	ERJ3GEYJ106	M.RESISTOR CH 1/16W 10M	1	
R4201	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R4202	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R4203	ERJ2GEJ123	M.RESISTOR CH 1/16W 12K	1	
R4205	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4206	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4225	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R4228	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R4230	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R4801	ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R4802	ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R4803	ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R4805	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4806	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R4807	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4808	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R4809	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R4810	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4811	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4812	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4814	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R4815	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4816	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R4818	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
R4823	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R4824	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R4861	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R4864	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R4898	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R4899	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R4901	ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R4902	ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
R4904	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R4905	ERJ2GEJ471	M.RESISTOR CH 1/16W 470	1	
R4906	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4907	ERJ6GEYJ154	M.RESISTOR CH 1/10W 150K	1	

R4908	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	1	
R4909	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R4910	ERJ2GEJ562	M.RESISTOR CH 1/16W 5.6K	1	
R4911	ERJ2GEJ181	M.RESISTOR CH 1/16W 180	1	
R4912	ERJ2GEJ471	M.RESISTOR CH 1/16W 470	1	
R4913	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4914	ERJ6GEYJ154	M.RESISTOR CH 1/10W 150K	1	
R4915	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	1	
R4916	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R4917	ERJ2GEJ562	M.RESISTOR CH 1/16W 5.6K	1	
R4918	ERJ2GEJ181	M.RESISTOR CH 1/16W 180	1	
R4919	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R4920	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R4924	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
R4925	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R4926	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R4928	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
R4929	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R4930	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R6803	ERJ6GEYJ181	M.RESISTOR CH 1/10W 180	1	
S6901	VSP0584	SWITCH	1	
	VEP28261D	EVF C.B.A.		(RTL)
BL881	VLL0203	FLUORESCENT LAMP	1	
C801	ECUM1A335KBM	C.CAPACITOR CH 10V 3.3U	1	
C802	ECUM1A226MBS	C.CAPACITOR CH 10V 22U	1	
C827	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C829	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C830	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	1	
C832	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C833	ECST1CY225Z	T.CAPACITOR CH 16V 2.2U	1	
C834	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C835	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C836	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C837	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C838	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	
C839	ECST0JY106Z	T.CAPACITOR CH 6.3V 10U	1	

C865	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
C866	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
D801	MA338	DIODE	1	
D803	1SS355	DIODE	1	
FP801	VJS4012B018	CONNECTOR (FEMALE) 18P	1	
FP802	VJS3319B016	CONNECTOR (FEMALE) 16P	1	
IC802	ET2071F0A	IC	1	
IC805	TA75S558F	IC	1	
L801	VLQ0426J6R8	COIL 6.8UH	1	
L803-05	VLQ0807K100	COIL 10UH	3	
L881	VLQ0779K100	COIL 10UH	1	
Q881	2SK2055	TRANSISTOR	1	
R802	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R805	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R807	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R808	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R832	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R834	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R835	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R836	ERJ2GEJ471	M.RESISTOR CH 1/16W 470	1	
R841	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R849	ERJ2GEJ471	M.RESISTOR CH 1/16W 470	1	
R850	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R851	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R852	ERJ2GEJ682	M.RESISTOR CH 1/16W 6.8K	1	
R878	ERJ2RHD223	M.RESISTOR CH 1/16W 22K	1	
R879	ERJ2RHD183	M.RESISTOR CH 1/16W 18K	1	
R880	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
R881	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
T881	ETJ11K73AM	TRANSFORMER	1	
W802	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	
W803	ERJ2GE0R00	M.RESISTOR CH 1/16W 0	1	

				(RTL)
	VEP02567A	DRIVE C.B.A.		
C2202	ECUX0J105KBV	C.CAPACITOR CH 50V 1U	1	
C2203	ECUX1E332KBQ	C.CAPACITOR CH 25V 3300P	1	
C2205	ECUX0J105KBV	C.CAPACITOR CH 50V 1U	1	
C2206	ECUX1E332KBQ	C.CAPACITOR CH 25V 3300P	1	
C2207	ECUX1E331KBQ	C.CAPACITOR CH 25V 330P	1	
C2208	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C2209	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C2210	ECUX0J105KBV	C.CAPACITOR CH 50V 1U	1	
C2212	VCS0JP106	E.CAPACITOR 6.3V 10U	1	
C2213	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C2214	ECUX1C103KBQ	C.CAPACITOR CH 16V 0.01U	1	
C2216	VCS0JP106	E.CAPACITOR 6.3V 10U	1	
C2217	ECUX0J105VBV	C.CAPACITOR CH 6.3V 1U	1	
C2218	ECUX1H470JCQ	C.CAPACITOR CH 50V 47P	1	
C2219	ECUX0J105KBV	C.CAPACITOR CH 50V 1U	1	
C2220	ECUX1E102KBQ	C.CAPACITOR CH 25V 1000P	1	
C2221	ECUX0J105KBV	C.CAPACITOR CH 50V 1U	1	
C2222	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C2223	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C2224	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C2225	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C2226	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
C2227	VCS0JP106	E.CAPACITOR 6.3V 10U	1	
C2233	ECUX1A104KBQ	C.CAPACITOR CH 10V 0.1U	1	
FP2201	VJS4273B018	CONNECTOR (FEMALE) 18P	1	
FP2202	VJS4036B010	CONNECTOR (FEMALE) 10P	1	
FP2203	VJS4298B018	CONNECTOR (FEMALE) 18P	1	
IC2201	TB6534F	IC	1	
IC2202	UN224	TRANSISTOR-RESISTOR	1	
IC2203	UN224	TRANSISTOR-RESISTOR	1	
PP2201	VJP4288B040	CONNECTOR (MALE) 40P	1	

R2201	ERJ2GEJ224	M.RESISTOR CH 1/16W 220K	1	
R2202	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R2203	ERJ2GEJ224	M.RESISTOR CH 1/16W 220K	1	
R2204	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R2205	ERJ8RQJR27	M.RESISTOR CH 1/8W 0.27	1	
R2206	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
R2207	ERJ2GEJ122	M.RESISTOR CH 1/16W 1.2K	1	
R2208	ERJ2GEJ273	M.RESISTOR CH 1/16W 27K	1	
R2209	ERJ2GEJ823	M.RESISTOR CH 1/16W 82K	1	
R2210	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R2211	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1	
R2212	ERJ2GEJ102	M.RESISTOR CH 1/16W 1K	1	
R2213	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R2216	ERJ8GEYJR33	M.RESISTOR CH 1/8W 0.33	1	
R2217	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R2218	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R2227	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
				(RTL)
	VEP000D0A	MMC/AV JACK C.B.A.		
B6101	VSB0407	BATTERY	1	
C4051	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C4052	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
HS4051	VEK8766-1	MMC HOLDER	1	
J4051	VJJ0612	AV JACK	1	
LB4051	VLF1143A121	COIL 120UH	1	
R4051	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R6101	ERJ6GEYJ561	M.RESISTOR CH 1/10W 560	1	
VZ4051	VRT0158	TRANSIENT/SURGE ABSORBER	1	
		MISCELLANEOUS		
	VMZ2897	JACK BARRIER	1	
				(RTL)

	VEP06D07A	S/S POWER FLEX.CARD C.B.A.		
D6101	CL170UR-CD	CHIP LED	1	
D6102	CL170YG-CD	DIODE	1	
D6103	CL170D-CD	CHIP LED	1	
R6101	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
S6101	VSS0533	SLIDE SWITCH	1	
S6103	VSP0584	SWITCH	1	
S6104	VSS0392	SLIDE SWITCH	1	
S6105	VSP0584	SWITCH	1	
				(RTL)
	VEP22290A	CCD FLEX. CARD C.B.A.		
C294	ECST1VX225Z	T.CAPACITOR CH 35V 2.2U	1	
C295	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1	
D291	MA143	DIODE	1	
PP291	VJP4009C020	CONNECTOR (MALE) 20P	1	
Q291	2SC3930	CHIP TRANSISTOR	1	
R292	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
		MISCELLANEOUS		
	VJB22290	FLEX. CARD	1	
				(RTL)
	VEP000C2A	TOP OPERATION C.B.A.		
D6701	CL170YG-CD	DIODE	1	
FP6701	VJS2533B005	CONNECTOR (FEMALE) 5P	1	
S6701	VSP1102	SWITCH	1	
S6702	VSP1102	SWITCH	1	
S6703	VSS0392	SLIDE SWITCH	1	

S6704	VSR0223	ENCODER SWITCH	1	
				(RTL)
	VEP000A5A	PHOTO C.B.A.		
				(RTL)
	VEP000C1A	MULTI JACK C.B.A.		
PS3002	VJS4009A030	CONNECTOR (FEMALE) 30P	1	
PS3003	VJS4024	MULTI JACK	1	
				(RTL)
	VEK8892	LENS FLEX. CARD C.B.A.		
		MISCELLANEOUS		
	HT-120B	HALL SENSOR	1	
	VJB20797	FLEX. CARD	1	
				(RTL)
	VEP06D10A	HALL SENSOR FLEX. CARD		
IC991	DN8797MSC	IC	1	
IC992	DN8797MSC	IC	1	

•@

TOP PREVIOUS